Community Health Needs Assessment

Alexander Valley Healthcare

2022

The planned future Alexander Valley Health and Wellness Center in Cloverdale

Alexander Valley Healthcare

Feel Good... We Have You Covered

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Credits and Suggested Citation

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Front Cover illustration: Artist's rendering of the planned future Alexander Valley Health and Wellness Center in Cloverdale, prepared by Stromberg Architecture, Berkeley, Calif., *http://www.strombergarchitecture.com*.

EXECUTIVE SUMMARY

History

Alexander Valley Healthcare (AVH) was incorporated in 1994 as Coppertower Family Medical Center.[1] Located in Cloverdale, the northernmost city in Sonoma County, California, the organization was originally created to provide medical and dental care for Medicare and Medicaid patients not being seen by local medical providers.

A decade later, the last private practice physicians left Cloverdale. AVH became the **sole medical provider** in the area from Healdsburg to Ukiah, and the only dental or mental health practice in that area accepting Medi-Cal (California's Medicaid program) or uninsured patients. The health center rose to this challenge, moving to larger leased medical and dental clinic sites and welcoming private insurance patients who had lost their private physicians.

In 2013, AVH successfully applied to become a Federally Qualified Health Center (FQHC), a designation that provides both annual grant funding and higher Medi-Cal and Medicare reimbursement rates. AVH has used these new revenues to expand services, including hiring more medical providers, restoring the scope of dental services reduced due to state Medi-Cal cuts, expanding mental health staff, adding substance use counseling, and arranging contracted pharmacy services.

To qualify as an FQHC, AVH had to meet a wide range of federal requirements,[2] among them:

- Having a governing board, a majority of whose members are patients of the center;
- Offering sliding scale discounts for uninsured and underinsured low-income patients;
- Having an appropriate number and mix of providers for patient volume and needs;
- Providing a set of required medical and additional services;
- Arranging for follow-up on referrals to sub-specialists or other services the FQHC does not provide directly;

[1] Coppertower Family Medical Center remains the legal name of the organization, although it is doing business as (dba) Alexander Valley Healthcare.

[2] For a complete list of federal health center requirements, see the summary on the Health Resources & Services Administration (HRSA) Bureau of Primary Health Care website: *https://bphc.hrsa.gov/programrequirements*.

- Offering after-hours phone access to on-call providers for emergencies;
- Following patients who are hospitalized, and providing post-hospital follow-up;
- Maintaining an active internal quality assurance/quality improvement program;
- Having a data reporting system that can track and report federal quality-of-care measures;
- Hiring a management team with range of management skills; and
- Demonstrating that it is fiscally sound and follows federal contracting and accounting rules, as verified by an annual independent CPA audit and periodic federal site visits.

FQHCs are a type of "blended" healthcare provider specifically developed for underserved low-income populations living in areas where other services are scarce. Like private practices, they address the "presenting health problems" of each individual patient, but, like public health departments, they also work to address community health problems, including filling service gaps, conducting community health promotion efforts, networking with other health and social service agencies, and conducting emergency preparedness activities.

Conducting community health needs assessment is part of an FQHC's community-focused role. The purpose of the needs assessment is to identify high-need populations in the area and identify service gaps that the health center can fill.

AVH has conducted a needs assessment every two to three years since 2011, using a wide range of external community data sources as well as data from its own electronic health record system. The current needs assessment is particularly important because it compares the last two years (2018–2019) prior to the SARS-CoV-2 (COVID-19) pandemic with the first two years of the pandemic (2020–2021).

Population Served

AVH has remained true to its original **"safety net"** mission: 89.1 percent of patients whose income is known have incomes below 200 percent of the federal poverty level; 39.7 percent are enrolled in Medi-Cal; 15.8 percent are Medicare beneficiaries; and 17.5 percent are uninsured.

Private insurance patients now comprise 26.9 percent of all AVH patients. However, many privately insured patients are underinsured, meaning they either have gaps in what their insurance covers or have high deductibles, copayments, and other out-of-pocket costs that the

patient cannot afford. FQHCs offer sliding scale discounts that can assist uninsured or underinsured low-income patients in getting the care they need.

AVH's patients also include a number of high-need populations who face a variety of barriers to care, as well as many patients with chronic medical and mental health conditions.

Caring for Vulnerable Populations

In 2020–21, AVH served **5,708** unduplicated patients (up 4.3 percent from 5,460 in 2019–2020). Of those patients:

- **89.1%** were low-income
- **17.5%** were uninsured
- **1.8%** were experiencing homelessness
- **50.8%** were ethnic or racial minorities
- **21.3%** had limited English proficiency
- **3.1%** were veterans
- **7.0%** were migrant or seasonal agricultural workers
- **21.4%** were children or adolescents
- **13.6%** were women of childbearing age
- **20.0%** were seniors.

CHRONIC CONDITIONS

In the past two years, **more than half** of all AVH patients (50.3 percent) had one or more chronic medical or mental health conditions:

- **36.6 percent** of patients (2,088) had **one or more chronic medical conditions**, such as hypertension, overweight or obesity, chronic pain, diabetes, asthma, heart disease, or chronic lower respiratory disease.
- **31.9 percent** of patients (1,822) had **one or more chronic mental or behavioral health conditions**, such as depression, anxiety disorders (including PTSD), substance use disorders, attention deficit disorders, or other mental health conditions.
- **18.2 percent** of all patients (1,040) had BOTH **one or more chronic medical AND one or more mental health conditions**.

AREA RESIDENTS AT RISK

Since becoming an FQHC, AVH has drawn patients from a wider geographic area: Although 75.1 percent of 2020–2021 patients (4,284) came from the Cloverdale ZIP Code, 95425, and 88.1 percent came from Sonoma County, 7.6 percent were from Mendocino County and 2.5 percent were from Lake County.

Regardless of ZIP Code origin, residents of the AVH service area face a number of **barriers to health and wellness** and/or their ability to receive health care, including:

- **High cost of housing**: An estimated 59.1 percent of service area residents spend more than 30 precent of their income on housing; 25.4 percent spend more than 50 percent of their income on housing.[3]

- **Overcrowded or substandard housing:** 8.1 percent of service area housing is overcrowded and 1.6 percent of rental housing lacks plumbing facilities.[4]

- **Food insecurity**: In 2020, an estimated 10.3 percent of Sonoma County residents, 19.1 percent of Mendocino County residents, and 20.9 percent of residents of Lake County were living in households that met the USDA definition of "food insecure."[5]

- **Higher food costs:** At $4.30 per meal in 2020, the USDA average meal cost per person in Sonoma County was 24.6 percent higher than the $3.45 per-meal average cost for California as a whole,[6] even before the substantial inflation of 2021–2022.

- **Free or reduced-price school lunch**: 56.7 percent of students in the Cloverdale Unified School District qualify for free or reduced-price school lunches.[7]

- **Lack of Internet access:** 9.5 percent of households in the AVH service area lack Internet access, compared to 6.5 percent of Sonoma County as a whole, which prevented those

[3] U.S. Census Bureau American Community Survey 5-year estimates, 2016–2020.

[4] Ibid.

[5] Feeding America, Map the Meal Gap 2021, "Food Insecurity among Overall (all ages) Population in California," as of March 21, 2021, *https://map.feedingamerica.org/county/2020/overall/california*.

[6] Ibid.

[7] California Dept. of Education, Free or Reduced-Price Meal (Student Poverty) Data; National Center for Education Statistics, Digest of Education Statistics (Jul. 2021), as cited on kidsdata.org, a program of Population Reference Bureau.

households' use of telehealth virtual visits and interfered with students' virtual attendance of school.[8]

- **Limited transportation:** Cloverdale is the only community in the service area with local bus transportation. Even there, bus service to larger cities such as Santa Rosa is very limited, creating barriers to care for the 11.1 percent of area renter households with no available vehicle.[9]

- **No regular source of care:** 45 percent of uninsured residents of Sonoma County are without a regular source of healthcare.[10]

AVH Model of Care

FQHCs accept all types of insurance and offer sliding scale discounts for patients who are uninsured or between coverage. This approach was designed to address the financial instability that low-income patients often face. Additionally, FQHC patients can continue to see the same providers despite changes in coverage, improving continuity of care.

AVH has built its own clinical care model on top of this FQHC financial framework, with the same goal of continuity of care.

AVH encourages patients to establish "health homes" with AVH providers. Medical, dental, and mental health care teams work in tandem to achieve "whole person" care. Through coordination between teams or referrals to outside providers when needed, AVH encourages patients to use the full range of services they need to improve their health and wellness rather than only seeking care for a current illness or injury.

Patients' medical care is organized around their own **physician-led teams** of nurse practitioners, nurses, case managers, referral coordinators, and medical assistants. These teams focus on health promotion and managing chronic conditions as well as treating critical health problems.

This model is built on **establishing relationships** between patients, providers, and their support teams. The goal is for staff to get to know patients and patients to come to trust their care teams. To that end, patients usually select a regular provider, and providers usually have

[8] U.S. Census Bureau, American Community Survey 5-year estimates, 2016–2020.

[9] Ibid.

[10] California Health Interview Survey (CHIS), UCLA Center for Healthcare Policy Research, 2018, 2019, and 2020 pooled data. Retrieved from AskCHIS, *https://ask.chis.ucla.edu/ask/*.

regular assigned support staff. If a patient has lab results, or has fallen behind on screenings, lab work, or rechecks (e.g., blood pressure re-checks), it is the familiar support staff or provider from the patient's own care team that contacts the patient to follow up.

Care teams also address economic or social barriers to health by providing financial assistance staff who can assist patients with enrolling in Medicare; Medi-Cal; CalFresh (California's food stamp program); the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); or housing assistance programs as needed.

Patients can contact their provider or care team members via AVH's online patient portal as well as by phone.

Care teams are supported by AVH's electronic health record system, which is used to report health outcomes and flag patients who are due for a particular lab test, screening, recheck, or follow-up care. Prescriptions are ordered through the e-prescribing section of the system, while lab tests are ordered and lab results received electronically and directed to the patient's record, with a notification automatically sent to their provider.

AVH has evidence to show that its model has been working:

- The National Committee on Quality Assurance (NCQA)[11] has recognized AVH as a Level 3 Patient-Centered Medical Home, the highest level of recognition.
- AVH has received both Health Center Quality Leader and Advancing Health Information Technology for Quality recognition from the Health Resources & Services Administration (HRSA), the agency that funds FQHCs.
- In 2019, AVH was in honored as a Hypertension Control Champion as part of the Million Hearts national initiative co-led by the Centers for Disease Control (CDC) and the Centers for Medicare & Medicaid Services (CMS).

Response to COVID-19 Pandemic

AVH has history of disaster planning and preparedness, beginning with the 2009 H1N1 (swine flu) pandemic. Since late 2011, AVH has also been coping with one of the most severe droughts

[11] The National Committee on Quality Assurance (NCQA) is a national healthcare accreditation organization, headquartered in Washington, D.C., which reviews and accredits health plans' and providers' quality of care. See *https://www.ncqa.org/about-ncqa/*.

in California history, as well as a period of severe wildfires that have impacted Sonoma, Mendocino, and Lake Counties.

AVH clinicians anticipated and responded early to the COVID-19 pandemic, conducting the first staff COVID-19 test in December 2019 and the first patient COVID-19 test in January 2020. (Sonoma County recorded its first confirmed COVID-19 case on March 2, 2020.)

In March 2020, state and local public health officials issued "shelter in place" orders and restricted nonessential healthcare visits. All nonemergency dental services were suspended by public order, and many patients who might have come in chose to remain at home. AVH established community-wide COVID-19 testing a few months later, in an off-site location.

During this period, AVH launched its first telehealth services for medical and mental health visits and established data connections so that all remote and virtual services could be captured by the health center's electronic health record system.

When COVID-19 vaccines became available, AVH established community-wide vaccination sites at the Cloverdale Citrus Fairgrounds, an effort which administered more than 15,000 vaccine doses. According to Sonoma County estimates,[12] as of Oct. 2, 2021, 87.7 percent of eligible residents of the Cloverdale ZIP Code were fully vaccinated and an additional 9 percent were partially vaccinated. In the Geyserville ZIP Code, 89 percent of eligible residents were fully vaccinated and 11 percent were partially vaccinated as of that date.[13]

On May 21, 2021, the Cloverdale Chamber of Commerce and Sonoma County Economic Development Board honored AVH for its vaccination effort with a Spirit of Sonoma Award.

However, all of these COVID-19 pandemic efforts had a substantial impact on the health center itself. As outlined in the Service Patterns and Emergency Preparedness chapters of this needs assessment, AVH lost both provider staff and clinical support staff due to a combination of pandemic-related factors, including family emergencies, fear of COVID-19 infection, and overwork. As providers left, the workload on remaining providers grew more severe, triggering other resignations.

[12] Sonoma County Coronavirus Data Dashboard, *https://socoemergency.org/emergency/novel-coronavirus/coronavirus-cases/*.

[13] Later vaccination data for the service area is not available on a per-ZIP Code basis, but as of Oct. 7, 2022, the Sonoma County dashboard estimates that 78 percent of the county's population is fully vaccinated and 66.2 percent of eligible residents (i.e., aged 5 or older) have received at least one COVID-19 booster dose.

If AVH had had sufficient facilities and larger staff, much of this overload could have been spread over a larger number of providers and support people, lessening the impact.

Limitations of Current Facilities

By 2017, AVH had outgrown the health center buildings it had leased prior to becoming an FQHC. AVH's 2019 Community Needs Assessment identified the capacity of existing medical and dental facilities as a major barrier to AVH's continued growth, essentially capping patient volume at 4,000 to 4,200 patients per year due to the limited number of medical exam rooms, dental operatories, and counseling rooms available. This also precluded hiring additional providers to expand service volume.

However, as documented in the "Service Patterns" chapter of this needs assessment, demand for AVH's services has continued to increase. In the past four years, an **average of 871 new patients were added each year**. The gap between AVH's staffing capacity and the number of patients who look to AVH for primary care has become a significant obstacle to the goal of enabling all patients to establish a true medical home at AVH rather than only seeking episodic care when ill.

AVH has taken a number of steps to maximize utilization of existing space, including establishing longer clinical hours five days a week to make greater use of exam rooms; expanding phone and Internet contacts with patients; using secondary modular buildings for some administrative functions; and restructuring the interior layout.

The pandemic exacerbated the problems of inadequate space. Due to space constraints, AVH initially had difficulty in establishing a clear separation of patient flow between sick patients coming in for COVID-19 testing and healthy patients coming in for routine care, screenings, and later vaccination.

Despite these obstacles, AVH was able to increase the number unduplicated patients served during the 2020–2021 period by 4.3 percent compared to the two prior years, 2018–2019. As previously noted, this expansion was largely made possible by AVH initiating its first telehealth services in early 2020.

Patient acceptance of telehealth has been positive. Patients appreciate the reductions in lost work time and the convenience of not having to travel to the health center. Telehealth also allowed some staff to work from home.

However, some services can only be provided in person, such as dental care, medical screenings, childhood vaccinations, and lab tests. A clinical backlog of such in-person-only

services has developed since the pandemic began. While all of those services are essential parts of AVH's care model, the current limits on space and staffing have made it difficult to catch up on the backlog since full normal caseloads have resumed.

Furthermore, the use of telehealth visits remains dependent on Medi-Cal, Medicare, and private carrier reimbursement policies. While the COVID-19 pandemic resulted in waivers that allowed coverage for many types of virtual visits, that may change as state and federal emergency declarations end or evolve.

Future Growth Opportunities

Alexander Valley Healthcare has already developed plans to replace its now-outgrown facilities. However, this will require new construction, as there is no existing building of suitable size or location available for use or remodeling in Cloverdale. Land for the new facility has been purchased, designs have been developed, and city planning approval is underway.

The planned site is located on local bus routes; is close to freeway exits; and is adjacent to the Cloverdale Citrus Fairgrounds, which are used as a staging area and temporary shelter site during disasters. AVH plans that the new facility will store emergency supplies and equipment in a collaboration with area emergency response teams, continuing AVH's disaster-preparedness efforts.

The planned new facility is designed to serve as a "hub" for an expanded range of healthcare services in the mostly rural areas of northern Sonoma County, southern Mendocino County and southern Lake County. The facility would be large enough to:

- Allow 8,000 or more patients to be seen annually;
- Combine AVH's medical, dental, and behavioral health services in one location to allow better integration of services and improve providers' ability to cross-refer patients;
- Allow co-location of other health and social service in the same facility, including some of the organizations which partnered closely with AVH during the COVID-19 pandemic; and
- House new services not currently present in the community, either provided directly by AVH or by other service organizations/providers sharing the site (which current space restrictions would not permit).

The Future Growth Opportunities chapter identifies a number of program development options for AVH to consider as it plans the new facility.

PART ONE: Service Area

Overview

This report updates the Alexander Valley Healthcare (AVH) Community Health Needs Assessment completed in mid-2019, using newer internal data and U.S. Census estimates.[14]

This chapter focuses on determining whether the service area identified in the 2019 report continues to reflect the area from which AVH draws most of its patients, as well as describing key socioeconomic characteristics of that area that affect the health and wellness of its residents.

Subsequent chapters will examine changes in patient population, service patterns, and community health statistics since 2019.

Service Area

DEFINING THE PRIMARY SERVICE AREA

The Health Resources & Services Administration (HRSA) Bureau of Primary Health Care (BPHC), which oversees Federally Qualified Health Centers (FQHCs), defines the "service area" of an FQHC as the set of ZIP Codes in which **at least 75 percent of the health center's patients reside**.

BPHC requires that each FQHC annually review its service area boundaries to determine whether that service area continues to accurately reflect the origins of the health center's patients and assess whether there are other geographic areas in the region whose residents may also need healthcare services.

Historically, the principal AVH service area has included three ZIP Codes: two in northern Sonoma County and one continuous ZIP Code in Mendocino County:

- **Cloverdale:** ZIP Code 95425 (in Sonoma County)
- **Geyserville:** ZIP Code 95441 (in Sonoma County), and
- **Hopland:** ZIP Code 95449 (in Mendocino County).

[14] Unless otherwise indicated, 2020 population data in this report is based on U.S. Census Bureau American Community Survey 5-year estimates, 2016–2020.

In its community needs assessments, AVH examines patient origin data in two ways:

(1) Studying the ZIP Codes of residence of all unduplicated users in a single calendar year.

(2) Analyzing the residential ZIP Codes of all unduplicated users in the most recently completed two-calendar-year period.

Examining two years of unduplicated patient data has proven an accurate means of identifying all of the patients who look to AVH as their **principal source of care**, including those who do not have a face-to face encounter with a licensed provider in every year, but may use other services during that period. This multi-year assessment process is also a valuable method for identifying patients with active or chronic health problems who may be underutilizing services.

These considerations have become more urgent because of the COVID-19 pandemic, which has created a clinical backlog of services (e.g., dental prophylaxis, well person visits, immunizations, chronic disease check-ups, lab tests) that were missed or postponed due to the public health emergency while increasing the need for case management and lab work.

Both methodologies confirm that the three ZIP Codes that comprise the historical AVH service area continue to be the source of more than 75 percent of AVH's patients.

- **One-year profile:** As reported in its Uniform Data System (UDS) report for the 2021 calendar year, the most recent one-year profile, AVH served 4,514 unduplicated patients in 2021, of whom 3,637 (80.6 percent) were residents of the three service area ZIP Codes; 3,460 (76.7 percent) were residents of the Cloverdale ZIP Code, 95425.

- **Two-year profile:** In the period Jan. 1, 2020 – Dec. 31, 2021, the most recent two-year profile, AVH served 5,708 unduplicated patients, of whom 4,512 (79.0 percent) were residents of the three service area ZIP Codes.

Table 1: AVH Patients by ZIP Code/ZIP Code Tabulation Area (ZCTA), 2020–2021

ZIP Code	Post Office Name	Number of Patients*	Percentage of Patients in Service Area	Percentage of All Patients
95425	Cloverdale	4,284	94.9%	75.2%
95441	Geyserville	137	3.0%	2.4%
95449	Hopland	91	2.0%	1.6%
TOTALS	**N/A**	**4,512**	**100.0%**	**79.0%**

* Patients whose full addresses were known

The percentage of unduplicated 2020–2021 users residing in the service area, 79.0 percent, is close to the 79.2 percent reported in AVH's 2019 needs assessment.

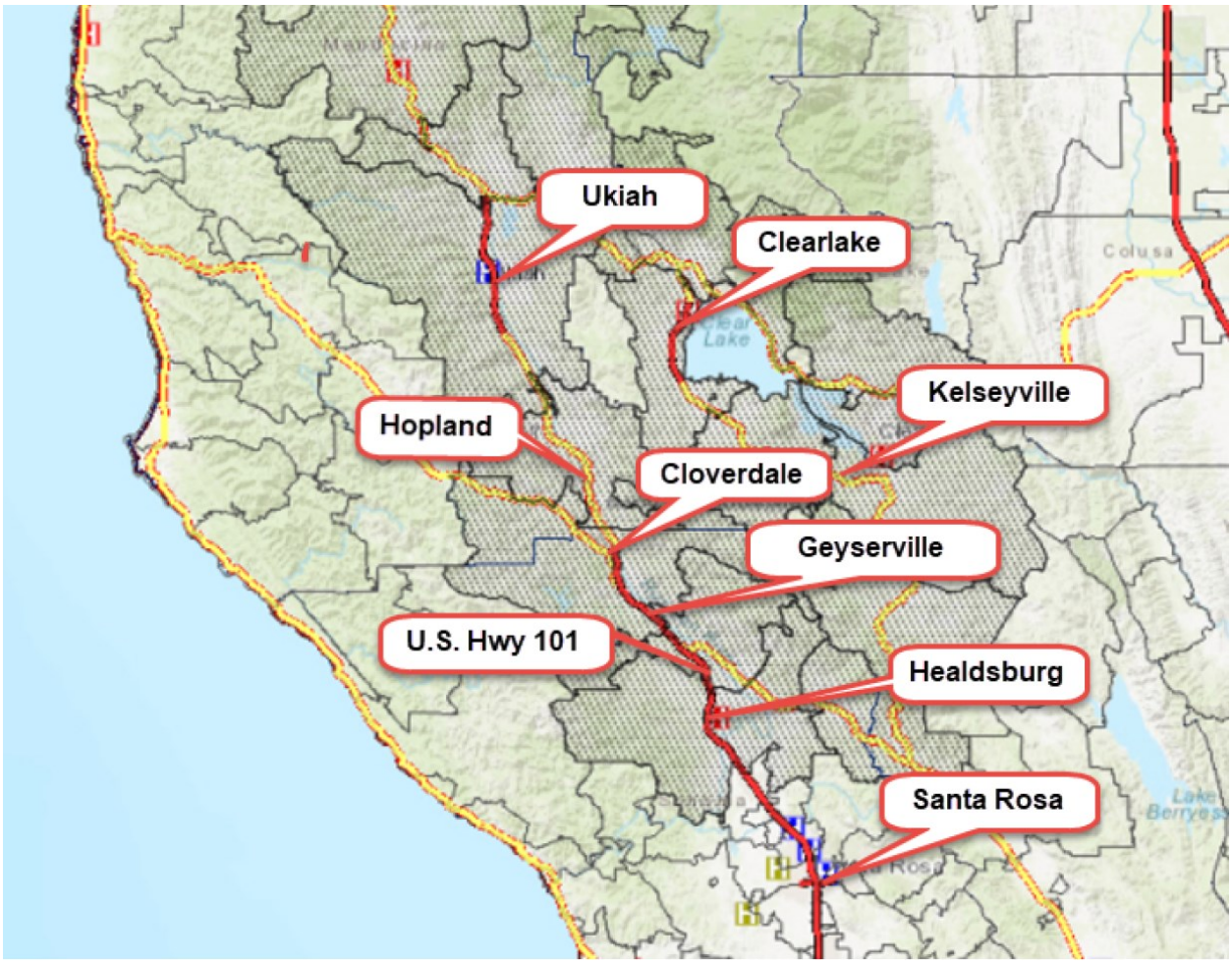
Table 2: Total AVH Patients, 2018–2019

Origin	2018	2019	2018–2019
Total unduplicated patients, all areas	4,122	4,221	5,472
From service area ZIP Codes	3,374	3,389	4,183
% service area residents	81.9%	80.3%	76.4%

Table 3: Total AVH Patients, 2020–2021

Origin	2020	2021	2020–2021
Total unduplicated patients, all areas	4,064	4,514	5,708
From service area ZIP Codes	3,305	3,637	4,512
% service area residents	81.3%	80.6%	79.0%

Figure 1: Map of Combined AVH Primary and Secondary Catchment Areas, 2021



Source: Health Resources and Services Administration (HRSA), UDS Mapper web application, 2021, *https://www.udsmapper.org*, accessed Nov. 9, 2022

The 2019 needs assessment noted that more patients were coming to AVH from other parts of Sonoma County and from Mendocino and Lake Counties. That report postulated several likely reasons people were traveling to AVH for care:

- Some out-of-area patients work in or near the service area and were seeking care closer to their work.
- Some out-of-area patients previously lived in the service area, were forced to move due to job changes or housing cost or availability, and wished to continue care with AVH.
- Some patients lacked available care closer to home.
- Providers closer to home did not offer sliding scale discounts.
- Providers closer to home did not offer Spanish-speaking providers or support staff.
- Out-of-area patients needed the additional services available at AVH (e.g., dental, mental health, substance use counseling).

A decrease in the number patients from these more distant communities was anticipated as a possible result of the COVID-19 pandemic. However, AVH appears to have retained most of its patients from outside the normal service area, although the previously identified **growth** in the number of users from more distant communities slowed somewhat.

The total number of patients from Mendocino County dropped from 453 (8.3 percent) in 2018–2019 to 436 (7.6 percent) in 2020–2021, while the number of patients from Lake County rose during the same period from 122 (2.2 percent) to 142 (2.5 percent). The previous influx of new patients from these counties may resume now that employment in Cloverdale is again growing.

The number of patients from Sonoma County also rose, from 4,718 (86.2 percent) in 2018–2019 to 5,025 (88.0 percent) in 2020–2021, an increase of 307 unduplicated patients (6.5 percent).

Table 4: AVH Patients by ZIP Code Origin, 2018–2019 and 2020–2021

ZIP Code	Post Office Name	AVH Patients 2018–2019	AVH Patients 2020–2021
95425	Cloverdale	3,966	4,284
Multiple ZIP Codes	Santa Rosa	238	232
95482	Ukiah	235	210
95448	Healdsburg	173	165
95441	Geyserville	124	137
95492	Windsor	98	94
95449	Hopland	93	91
95453	Lakeport	30	45
95451	Kelseyville	39	36

ZIP Code	Post Office Name	AVH Patients 2018–2019	AVH Patients 2020–2021
95470	Redwood Valley	23	30
95490	Willits	29	26
95494	Yorkville	23	25
94928	Rohnert Park	20	24
95472	Sebastopol	20	17
95437	Fort Bragg	12	13
95436	Forestville	<10	16
95445	Gualala	<10	11
95464	Nice	<10	10
95458	Lucerne	<10	10
95415	Boonville	18	<10
95437	Petaluma	16	<10
Other ZIP Codes**	Other**	338	217
Total Patients	**N/A**	**5,472**	**5,708**

** Includes other local, out-of-area, and out-of-state patients. Data has been suppressed where the number of patients is fewer than 10, in the interests of privacy.

HEALTH CENTER MARKET PENETRATION

Alexander Valley Healthcare remains the only medical provider located in the Coverdale ZIP Code or the neighboring Geyserville or Hopland ZIP Codes. Additionally, although there are two private dental practices in the area, AVH is the only dental practice in the area that accepts Medi-Cal or offers sliding scale discounts to uninsured or underinsured patients.

According to the UDS Mapper tool maintained by the American Academy of Family Physicians (AAFP), approximately one out of every three residents of the three service area ZIP Codes received care in 2021 from one or more federally funded community health centers,[15] including:

- 41.5 percent of all Cloverdale residents
- 26.1 percent of all Geyserville residents
- 37.7 percent of all Hopland residents, and
- 39.3 percent of the overall service area population.

Within the AVH service area, AVH's 2021 market position was as follows:

[15] American Academy of Family Physicians, UDS Mapper, *https://udsmapper.org*.

- **In the Cloverdale ZIP Code (95425):** Alexander Valley Healthcare was the predominant health center provider, while Alliance Medical Center served the second-largest share of Cloverdale patients seen by any health center.

- **In the Geyserville ZIP Code (95441):** Alliance Medical Center had the largest share of health center served patients, while Alexander Valley Healthcare had the second-largest market share.

- **In the Hopland ZIP Code (95449):** Mendocino Community Clinic was the leading health center provider, while Alexander Valley Healthcare had the second-largest market share.

Alexander Valley Healthcare had the second-largest market share of any health center in several other ZIP Codes: Ukiah, Lakeport, and Kelseyville. AVH ranked third in health center market share in Boonville, Yorkville, and Healdsburg.

Economics

EMPLOYMENT

According to data compiled by the U.S. Bureau of Economic Analysis, Sonoma County's 2020 gross regional product (GRP) — the most recent available figure — was $31.3 billion.[16]

Manufacturing comprised 15.4 percent of the county's 2020 GRP, or $5.8 billion. Healthcare and social assistance accounted for 11.1 percent of GRP, or $3.4 billion. Government comprised 9.5 percent of GRP, $3.0 billion, followed by construction and retail trade, which were each at 7.0 percent or $2.3 billion in 2020.[17]

The county benefits from a diverse employment base. The top six categories of employment are education and healthcare; retail trade; professional, scientific, and administration occupations; leisure and hospitality (associated with the county's tourism business); manufacturing; and construction.

The AVH service area also has a diverse economic base, including a mixture of education and health care; light manufacturing; professional, scientific, and administration occupations; retail

[16] Cited in Sonoma County Economic Development Board (EDB), *2022 Sonoma County Indicators: Industry Report 2022* (Santa Rosa, Calif.: Sonoma EDB, 2022), retrieved from *http://sonomaedb.org/Data-Center/Indicators/*.

[17] Ibid.

trade; and tourism, notably including a casino in Geyserville. Most businesses are small employers (with fewer than 25 employees), and many jobs are seasonal.

Table 5: Employment by Occupational Category, Sonoma County and AVH Service Area (Cloverdale and Geyserville), 2016–2020

Occupational Category	Sonoma County, Total	Sonoma County, %	AVH Service Area, Total	AVH Service Area, %
Management, business science, arts occupations	100,489	39.5%	2,878	40.0%
Service occupations	49,361	19.4%	1,230	17.3%
Sales & office occupations	53,566	21.1%	1,382	19.4%
Natural resources and maintenance occupations	24,760	9.8%	874	12.3%
Production, transportation, and material moving	25,743	10.1%	782	11.0%
Total Civilian Employment	**253,919**	**100.0%**	**7,116**	**100.0%**

Civilian employment totals for persons aged 16 and older. Source: U.S. Census Bureau, American Community Survey 5-year estimates, 2016–2020.

Table 6: Employment by Industry, Sonoma County and AVH Service Area (Cloverdale and Geyserville), 2016–2020

Industry	Sonoma County, Total	Sonoma County, %	AVH Service Area, Total	AVH Service Area, %
Agriculture, forestry, fishing, and mining	6,113	2.4%	386	5.4%
Construction	20,462	8.1%	561	7.9%
Manufacturing	25,298	10.0%	885	12.4%
Wholesale trade	6,547	2.6%	174	2.4%
Retail trade	29,830	11.7%	858	12.1%
Transportation, warehousing, and utility	9,846	3.9%	182	2.6%
Information	5,090	2.0%	94	1.3%
Finance, insurance, real estate, rentals and leasing	13,242	5.2%	300	4.2%
Professional, scientific, management and administration, waste management	30,691	12.1%	662	9.3%
Education, health care, and social assistance	54,004	21.3%	1,455	20.4%
Arts, entertainment, recreation, food, and accommodations	26,516	10.4%	673	9.5%
Other services, except public administration	15,111	6.0%	433	6.1%
Public administration	11,169	4.4%	452	6.4%
Total Civilian Employment	**253,919**	**100.0%**	**7,116**	**100.0%**

Civilian employment totals for persons aged 16 and older. Source: U.S. Census Bureau, American Community Survey 5-year estimates, 2016–2020.

The distribution of employment by industry in the AVH service area differs from Sonoma County as a whole in several key ways:

- In the AVH service area, agriculture (including wine grapes), forestry/lumbering, and fisheries account for 5.4 percent of employment, compared to only 2.4 percent of all employment in the county. That is not surprising, since a substantial portion of Sonoma County agriculture is located in the Healdsburg-Geyserville-Cloverdale area. This area also has a major fish hatchery.

- Manufacturing accounts for 12.4 percent of jobs in the AVH service area, compared to about 10.0 percent countywide. Construction accounts for 7.9 percent of service area jobs, compared to 8.1 percent of all jobs countywide. Both manufacturing and construction jobs increased in the 2016–2020 period.

- Professional and scientific occupations account for only 9.3 percent of service area employment, compared to 12.1 percent of employment countywide.

- Retails sales jobs are more common in central Sonoma County, reflecting that area's greater population density. However, the retail sector accounts for only 11.7 percent of all county employment, but 12.1 percent of all jobs in the more sparsely populated AVH service area.

- Education, healthcare, and social services now represent the largest employment segment, making up 21.3 percent of Sonoma County employment and 20.4 percent of AVH service area employment. Healthcare organizations such as Kaiser Permanente and the two tertiary care hospitals in the Santa Rosa area are among the County's 20 largest private employers.

Other large employers include manufacturers, food producers, tourism businesses such as casinos; a number of wineries; financial institutions; grocery chains; a construction firm, telecommunications giant AT&T; and a well-known dairy.

One of the leading manufacturing employers in Sonoma County is Amy's Foods, an organic frozen foods producer. Another is La Tortilla Factory, a maker of whole grain, low-carbohydrate, non-GMO tortillas, pasta, and noodle products.

Table 7: Leading Private Employers by Number of Employees, Sonoma County, 2018

Company	Employees in Sonoma County
Kaiser Permanente	3,508
St. Joseph Health System	2,500 (est.)
Graton Resort & Casino	2,000 (est.)
Keysight Technologies	1,300
Jackson Family Wines, Kendall-Jackson Wine	1,152
Sutter Santa Rosa Regional Medical Center	1,050

Company	Employees in Sonoma County
Amy's Kitchen	1,022
Medtronic	1,000
Oliver's Market	783
Hansel Auto Group	675
AT&T	600 (est.)
River Rock Casino	500 (est.)
Exchange Bank	392
Redwood Credit Union	382
Korbel Wineries	311
Mary's Pizza Shack	300
Ghilotti Construction Company	300
Sonoma Media Investments	297
La Tortilla Factory	250
Clover Sonoma Dairy	250

Source: *North Bay Business Journal,* "2018 Book of Lists Online," *https://www.northbaybusinessjournal.com/lists-online/*, updated by Santa Rosa Metro Chamber of Commerce

Although Hispanic residents remain a minority of the county's population, their role in local business has grown substantially. A 2017 report by the Sonoma County Economic Development Board (EDB) noted that the number of Hispanic-owned businesses in the county grew 24 percent between 2007 and 2015, from 4,056 businesses to 5,024. By that time, more than one in five new businesses in the county were Hispanic-owned.[18]

Small businesses comprise a substantial portion of Sonoma County's economy. According to the Sonoma County EDB, of the county's total of 19,840 business establishments in 2016, more than half (54.5 percent) had fewer than five employees.[19]

Sonoma County has a large number of self-employed individuals. Many are "non-employer establishments," which the U.S. Census Bureau defines as business establishments that have no paid employees and are subject to federal income tax. The ratio of non-employer establishments to payrolled businesses in Sonoma County in 2018 was higher than statewide (2.3:1 to 2.2:1), but lower than the nation as a whole (2.65:1).[20]

[18] Sonoma County Economic Development Board, *2017 Hispanic Demographic Trends: Demographics Report* (Santa Rosa, Calif.: Sonoma EDB, April 2017), retrieved from *http://sonomaedb.org/Data-Center/Demographics/*.

[19] Sonoma County Economic Development Board and Sonoma County Workforce Investment Board, *2018 Sonoma County Indicators, Unabridged Edition* (Santa Rosa, Calif.: Sonoma EDB, Nov. 2018), retrieved from *http://sonomaedb.org/Data-Center/Indicators/*.

[20] 2018 data from Sonoma County Economic Development Board, *2022 Sonoma County Indicators: Industry Report 2022* (Santa Rosa, Calif.: Sonoma EDB, 2022), retrieved from *http://sonomaedb.org/Data-Center/Indicators/*.

While some of these non-employer establishments are undoubtedly entrepreneurial ventures, there has been growing concern statewide in recent years over the growth of the so-called "gig economy" and businesses misclassifying workers as independent contractors rather than employees.

As independent contractors, workers must bear a significantly greater proportion of payroll and other taxes; are not eligible for employer-subsidized health insurance or the paid sick leave to which most California employees are now entitled;[21] and often have substantially less stable incomes than do hourly or salaried employees, all of which can have a significant negative effect on the ability to afford housing, child care, and healthcare.

In 2019 and 2020, the California Legislature, responding to a recent California Supreme Court ruling,[22] attempted to crack down on misclassification and the gig economy with new laws (AB 5 and AB 2257) that make it much more difficult for workers in California — even ones who are legitimately self-employed — to be treated as independent contractors. These changes may discourage misclassification, but they have created additional problems for California's many non-employer establishments.

Unemployment

According to the California Economic Development Department (EDD), Sonoma County unemployment, which had peaked at 11 percent during the "Great Recession," fell to only 3.0 percent as of July 2019, below both the national unemployment rate of 3.7 percent and the statewide rate of 4.1 percent. Unemployment in Cloverdale was only 1.9 percent at that time.[23]

However, by March 2020, the COVID-19 pandemic impacted employment statewide and in Sonoma, Mendocino, and Lake Counties. Public health officials ordered the closure of nonessential services, except those that could be conducted remotely. These "shelter-in-place"

[21] Since 2015, California law has required employers to provide most of their employees with at least three days or 24 hours of paid sick leave per year. Some cities and counties have enacted additional paid sick leave requirements for employees working within those jurisdictions.

[22] The high court's ruling in *Dynamex Operations W. Inc. v. Superior Court* (2018) 4 Cal.5th 903 established a new "ABC" test for determining whether a worker can be considered an independent contractor or must be treated as an employee for purposes of California labor law. AB 5 codified this test while adding a complex array of exceptions, which AB 2257 revised in mid-2020 (as California Labor Code §§ 2275–2287), with retroactive effect.

[23] California Economic Development Department (EDD), preliminary data (not seasonally adjusted) for July 2019, retrieved from *https://www.labormarketinfo.edd.ca.gov/data/labor-force-and-unemployment-for-cities-and-census-areas.html*.

orders, combined with the fear of contracting COVID-19, had a pronounced impact on many local sources of employment, notably restaurants, casinos, hotels, and other tourist venues.

By April 2020, the state's unemployment rate had risen to 8.3 percent, while Sonoma County was at 8.1 percent, Mendocino County was at 8.9 percent, and Lake County was at 9.6 percent. Cloverdale's unemployment rose as well, but only to 4.1 percent.

Table 8: Employment and Unemployment, Sonoma, Mendocino, and Lake Counties and City of Cloverdale, 2019–2022

Employment by Geography	Pre-Pandemic 2019	Mid-Pandemic 2020	Recovery Jan. 2022	Recovery Sep. 2022
SONOMA COUNTY				
Total labor force	254,400	310,390	246,300	250,400
Employed	252,400	284,540	237,800	243,700
Unemployed	7,000	25,290	8,600	7,000
Unemployed, percentage	**2.7%**	**8.1%**	**3.5%**	**2.8%**
MENDOCINO COUNTY				
Total labor force	38,930	37,020	36,090	38,410
Employed	27,390	33,170	34,440	37,090
Unemployed	1,550	3,290	1,650	1,320
Unemployed, percentage	**4.0%**	**8.9%**	**4.6%**	**3.4%**
LAKE COUNTY				
Total labor force	29,160	28,270	28,270	29,610
Employed	27,690	25,570	26,650	28,300
Unemployed	1,470	2,700	1,620	1,310
Unemployed, percentage	**5.0%**	**9.6%**	**6.7%**	**4.4%**
TOTAL, THREE COUNTIES				
Total labor force	322,490	310,390	310,660	318,420
Employed	317,480	284,540	298,890	309,090
Unemployed	10,020	25,290	11,870	9,630
Unemployed, percentage	**3.1%**	**8.1%**	**3.8%**	**3.0%**
City of Cloverdale				
Total labor force	4,400	3,900	4,000	4,400
Employed	4,400	3,700	3,900	4,300
Unemployed	100	200	100	100
Unemployed, percentage	**1.5%**	**4.1%**	**1.8%**	**0.9%**

Source: California Economic Development Department (EDD) preliminary data (not seasonally adjusted), retrieved from *https://www.labormarketinfo.edd.ca.gov/data/labor-force-and-unemployment-for-cities-and-census-areas.html*

The economies of all three counties have since recovered, although some of that recovery was still underway in 2022. Cloverdale now has an unemployment rate of less than 1 percent, while unemployment in Lake and Mendocino counties is below 2019 levels.

However, the total number of jobs in Sonoma and Mendocino Counties remains below total employment in 2019, indicating that the unemployment rates are lower in part because some people in those counties are not seeking employment.

In Cloverdale, EDD data indicates that the current number of employees in the workforce and the number of jobs remain the same as in 2019. However, in many other communities AVH serves, unemployment rates are still high. For example, in Lake County, unemployment is at 8.8 percent in Clearlake, 8.4 percent in Kelseyville, and 6.5 percent in Clearlake Oaks.

EDD does not break out Hopland unemployment. However, the Hopland area's rate is likely to be in a similarly high range given recent economic trends, in particular the impact of the permanent closure of the Hopland Sho-Ka-Wah Casino, which had previously been a major source of employment in the area, following the severe wildfires of 2018 (discussed further in the Emergency Preparedness chapter).

Agriculture

Agriculture remains a major sector of the Sonoma County economy, with an economic impact far exceeding the number of persons directly employed in the industry.

Agriculture has been an ongoing source of both initial and ongoing employment for many of the county's lowest-income residents, particularly Hispanic immigrants. The growing, tending, and harvesting of wine grapes; raising of livestock; and processing of related products such as milk, butter, cheese, and eggs tend to generate more year-round employment, while the seasonal harvesting of apples, vegetables, and other crops draw large numbers of migrant and seasonal agricultural workers to Sonoma County.

The economic value of Sonoma County's agricultural hit the $1 billion mark for the first time in 2018, with a reported total value of $1,106,662,100. This total, an increase of 23.8 percent from 2017, did not include other products or economic activities based on these crops (e.g., winemaking, tourism, or packaged frozen foods).[24]

Sonoma County is the largest wine producer in California's "Wine Country" region, which also includes Napa, Mendocino, and Lake Counties. Much of the growth in 2018 was due to a 34.4 percent increase in the value of wine grapes. With a 2018 value of $777.6 million, wine grapes accounted for 70.2 percent of the total dollar value of the county's agricultural products, exceeding the combined annual value of *all* Sonoma County agricultural output a decade ago.

[24] Sonoma County Dept. of Agriculture/Weights & Measures, *2018 Sonoma County Crop Report* (Santa Rosa, Calif.: Sonoma County Dept. of Agriculture/Weights & Measures, Aug. 2019).

Table 9: Crops or Livestock Products with Annual Value of $1 Million or More, Sonoma County, 2018–2021

Crop or Product Group	2018 Sales	2019 Sales	2020 Sales	2021 Sales
Wine grapes	$777.7 million	$654.0 million	$357.5 million	$541.0 million
Milk	$141.2 million	$127.1 million	$157.8 million	$124.5 million
Misc. livestock and poultry	$41.0 million	$42.7 million	$43.4 million	$12.1 million
Misc. livestock and poultry products	$38.9 million	$31.3 million	$33.1 million	$26.0 million
Cattle and calves	$20.7 million	$19.1 million	$20.5 million	$20.5 million
Sheep and lambs	$11.3 million	$5.8 million	$5.3 million	$4.9 million
Nursery – ornamentals	$20.4 million	$22.0 million	$19.5 million	$26.0 million
Nursery – miscellaneous	$18.1 million	$20.1 million	$15.0 million	$22.1 million
Nursery – cut flowers	$6.1 million	$4.7 million	$4.0 million	$6.1 million
Nursery – bedding plants	$5.6 million	$6.1 million	$7.7 million	$5.9 million
Vegetables	$8.4 million	$9.2 million	$5.8 million	$7.6 million
Apples – late varieties	$2.4 million	$2.7 million	$2.4 million	$1.7 million
Apples – Gravenstein	$1.2 million	$1.3 million	$1.5 million	$1.3 million
Silage rye and oats	$1.5 million	$1.4 million	$2.2 million	$0.9 million
Rye and oat hay	$1.2 million	$0.9 million	$1.2 million	$2.4 million
Total, all crops	**$1,106.7 million**	**$958.6 million**	**$680.6 million**	**$811.4 million**
Change from prior year, %	N/A	-13.4%	-29.0%	+19.2%

Source: Sonoma County Dept. of Agriculture/Weights & Measures, Sonoma County Crop Reports for 2018, 2019, 2020, and 2021. These figures represent total gross production values, not net income. The "all crops" total includes some not otherwise listed.

In subsequent years, the total tonnage of wine grapes sold declined, although that loss was made up by steady increases in average price per ton, according to Sonoma County's annual Crop Reports.

The preeminence of wine growing and harvesting has changed the nature of agricultural employment for many workers. The authors of *A Portrait of Sonoma County*, a report prepared in 2014 for Sonoma County Department of Health Services, explain the significance as follows:

> Vineyard workers are more highly skilled than other agricultural workers because producing grapes for premium wines involves a series of specialized tasks … which must be done by hand and require expertise and experience. Thus, vineyard workers in Sonoma County and neighboring Napa County tend to earn more than farmworker elsewhere in the state, though their wages are still on the low end of the wage distribution. In addition, unlike farms growing crops that require tending by many workers at harvest time and almost none the rest of the year, vineyards have work to be done nine or ten months of the year.[25]

[25] Sarah Burd-Sharps, et al, *A Portrait of Sonoma County: Sonoma County Human Development Report 2014* (Brooklyn, N.C.: Measure of America (A project of the Social Science Research Council), May 2014), p. 65.

This has led to more formerly migrant families settling in the area fulltime, although it is difficult to quantify how this process has affected the flow of migrant workers to the area. In any case, agriculture continues to employ more than 6,100 workers countywide.

Sonoma County's six federally funded community health centers reported serving a total of 1,397 known migrant and seasonal farmworkers in the 2021 calendar year. This is likely an undercount, as not all patients who work in agriculture necessarily indicate that they are migrants or seasonal workers.

What is clear is that there is a shortage of farmworkers, both for vineyards and other agricultural businesses, aggravated by current political hostility to immigration and the emergence of other employment opportunities, such as in the construction industry, during the recent periods of economic expansion.[26]

The growing and harvesting of wine grapes is only one aspect of the wine industry's impact on Sonoma County's economy. The county's wineries produce an estimated $8 billion dollars (U.S. retail value) of wine each year.[27] They also contribute to destination tourism, a major sector of Sonoma County's economy, further discussed below.

Dairy

Milk and dairy products are Sonoma County's second-largest agricultural sector by dollar value. Dairying has been a major part of the county's economy for more than 150 years. There are currently 65 registered dairies, including locally prominent Clover Sonoma and Straus Family Creamery. In addition to milk, the county is home to producers of cheese and yogurt.

According to Sonoma County Conservation Action, 80 percent of the county's dairies are now organic.[28]

Both the wine grape industry and the dairy industry in Sonoma County are facing severe problems due to California's historic 20-year drought and high temperatures, which have forced

[26] Chris Morris, "California Vineyards Struggle Amid Farmworker Shortage," *Fortune*, Sep. 4, 2018, *https://fortune.com/2018/09/04/immigration-worker-shortage-california-vineyards/*, and Bill Swindell, "North Coast grape growers depend on foreign workers and machines for annual harvest," *The Press Democrat* [Santa Rosa, Calif.], Aug. 31, 2018, *https://www.pressdemocrat.com/business/8669341-181/north-coast-grape-growers-depend*.

[27] Sonoma County Vintners (SCV) website, *https://sonomawine.com/wine-community-impact/*.

[28] Sonoma County Conservation Action (SCCA) website, *https://www.conservationaction.org.*

reductions in water use, impacted outdoors workers, and raised costs. (See the Emergency Preparedness chapter for more about the impact of the drought and rising temperatures.)

Tourism

The combination of Sonoma County's Pacific Coast location, the county's wine industry, an abundance of high-quality restaurants, and the presence of several large casinos[29] has made tourism a major source of revenue and employment in Sonoma County.

However, the COVID-19 public health emergency had a severe impact on that industry during the pandemic years of 2020 and 2021. According to official county reports, destination spending by travelers totaled $2.237 billion in 2019, generating an estimated 22,358 jobs. In 2020, that spending fell by nearly half, to $1.250 billion, and employment generation fell to 16,290 jobs.

By 2021, visitor spending had risen again, to $1.969 billion, increasing related employment at 17,640 jobs, although both figures remained well below the pre-pandemic peak of 2019.[30]

Passenger volume at Charles M. Schulz – Sonoma County Airport dropped from a peak of 488,179 passengers in 2019 to 195,303 passengers in 2020, rising again to 435,427 in 2021.

Tourism has contributed substantially to local and state tax revenues, including transient occupancy taxes (TOT) on hotels and other lodgings, airport taxes on flights, and sales tax. These revenues also suffered during the COVID-19 pandemic:

- Local taxes from the tourism industry, which amounted to an estimated $110 million in 2019, fell 42.7 percent to $63 million in 2020, recovering to $112 million in 2021.[31]
- State taxes from Sonoma County tourism totaled an estimated $95 million in 2019, falling to $49 million in 2020 and rising again to $85 million in 2021.[32]

[29] According to TripAdvisor, the county's largest casinos are Graton Resort & Casino in Rohnert Park, Parkwest Casino in Sonoma, and River Rock Casino in Geyserville; see *https://www.tripadvisor.com/Attractions-g1109451-Activities-c53-Sonoma_County_California.html*.

[30] Sonoma County Tourism, "Research & Reports: Tourism in Sonoma County," *https://www.sonomacounty.com/articles/partners/statistics*.

[31] Ibid.

[32] Ibid.

COST OF LIVING

Sonoma County has had a consistently high cost of living. According to Sperling's BestPlaces, an online real estate guide, in 2021, Sonoma County's cost of living was 151.8 percent of the U.S. average, led by housing costs that were 252.7 percent of the U.S. average for owner-occupied single-family homes.[33]

Table 10: Cost of Living as Percentage of U.S. Average, Sonoma County, California, and the United States, 2021

Cost of Living Elements	Sonoma County	California	United States
Overall	151.8	149.9	100
Grocery	110.6	105.1	100
Health	111.4	98.3	100
Housing (not including taxes or utilities)	252.7	234.8	100
Median home cost	$737,200	$684,800	$291,700
Utilities	98.8	102.4	100
Transportation	107.4	133.1	100
Miscellaneous	153.6	118.7	100

Source: Sperling's BestPlaces, "Cost of Living in Sonoma County, California," last updated Aug. 2021, *https://www.bestplaces.net/cost_of_living/county/california/sonoma*

The cost of living in Sonoma County and the AVH service area has risen even further over the past 18 months due to high inflation, which stems in part from supply chain disruptions and labor issues related to the COVID-19 pandemic as well as increases in fuel prices due to international conflicts.

The U.S. Bureau of Labor Statistics (BLS) measures changes in prices of consumer goods and services to calculate the Consumer Price Index for All Urban Consumers (CPI-U), which is also used to adjust the federal poverty guidelines and other economic measures for inflation. CPI-U data is available for Census regions, geographical divisions, and certain large metropolitan areas, but generally not on an individual state or county level.[34]

Data for the BLS Pacific Division, which includes California, Oregon, and Washington as well as Alaska and Hawaii, shows that the CPI-U increased 14.9 percent between September 2019 and September 2022. Monthly CPI data shows that inflation was comparatively modest throughout

[33] Sperling's BestPlaces, "Cost of Living in Sonoma County, California," last updated Aug. 2021, *https://www.bestplaces.net/cost_of_living/county/california/sonoma*.

[34] U.S. Bureau of Labor Statistics, "Consumer Price Index: Regional Resources," *https://www.bls.gov/cpi/regional-resources.htm*.

2020, but increased sharply beginning in mid-2021. Between June 2021 and September 2022, the CPI-U for the Pacific Division jumped 8.7 percent.

In the San Francisco-Oakland-Hayward region, the metropolitan area closest to the service area, the CPI-U was already substantially higher than the Pacific Division average even before the pandemic, but rose a further 9.6 percent between August 2020 and August 2022.

This high inflation means that **residents of the service area and the region are paying significantly more for food, utilities, fuel, and services** than before the COVID-19 pandemic. Moreover, those prices are still rising rapidly, which places further strain on the budgets of low-income households.

Recent increases in the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W)[35] have also triggered increases in the minimum wage. California's minimum wage will rise to $15.50 per hour for all employers effective Jan. 1, 2023, which will also raise the salary thresholds required for overtime exempt employees. The minimum wage rates in some cities and counties already exceeds that level. For example, the minimum wage in Santa Rosa, currently $15.85, will rise to $17.06 per hour on Jan. 1, 2023.[36]

While these wage increases are necessary to help workers keep pace with increases in the cost of living, the substantial increases in labor costs — which for some employers will have risen by over $2 per hour in just two years — may further accelerate the rate of inflation, leading to still higher prices for local consumers. Higher labor costs may also discourage job creation or result in layoffs.

The cost of living impacts the health of area residents in several ways:

- **High food costs** affect diet and nutrition choices (for example, by making it harder to afford fresh fruits and vegetables).
- **The high cost and limited availability of transportation** impacts access to employment and the ability to access healthcare when needed.

[35] CPI-W is a subset of CPI-U, based on the expenditures of households that drive more than one-half of their income from clerical or wage occupations and where at least one income earner has been employed for at least 37 weeks of the past 12 months. Minimum wage rates in some locales are tied to the CPI-W, which the Social Security Administration also uses to calculate annual inflation adjustments for Social Security and SSI payments.

[36] "California Minimum Wage by City in 2022 and 2023," Paycor, Oct. 18, 2022, *https://www.paycor.com/resource-center/articles/california-minimum-wage/*.

- **High housing costs** reduce residents' ability to afford regular healthcare.
- **Food insecurity, housing insecurity, and employment insecurity** are also major threats to family and individuals' mental health, and can contribute to behavioral health issues like substance abuse.

Food Costs

In 2020, the U.S. Department of Agriculture's average meal cost per person for California was $3.45 per meal per person, 6.1 percent higher than the U.S. average meal cost of $3.25.[37] The average cost per meal was considerably higher in the three counties that AVH serves:

- Sonoma County's 2020 average meal cost of $4.30 was 32.3 percent above the U.S. average and 24.6 percent higher than the 2020 California average.
- Lake County's 2020 average meal cost of $3.99 was 22.8 percent above the U.S. average and 15.7 percent higher than the 2020 California average.
- Mendocino County's 2020 average meal cost of $3.71 was 14.4 percent above the U.S. average and 7.5 percent higher than the 2020 California average.

According to the nonprofit organization Feeding America, an estimated 9.1 percent of California residents (3,571,920 people) were living in households that met the USDA definition of **food insecure** in 2020.[38]

The level of food insecurity reported for AVH's service counties was even higher: In 2020, an estimated 9.3 percent of Sonoma County residents, 15.0 percent of Lake County residents, and 13.9 percent of Mendocino County residents were living in households that met the USDA definition of food insecure, a total of approximately 67,780 people.[39]

This 2020 data does not reflect more recent inflationary trends. According to BLS data, the average cost of food in the West Region, which includes California and other western states,

[37] Feeding America, Map the Meal Gap 2021, "Food Insecurity among Overall (all ages) Population in California," as of March 21, 2021, *https://map.feedingamerica.org/county/2020/overall/california*.

[38] Ibid. Food insecure household are defined as households that are unable to provide adequate food for all household members for the entire year due to insufficient resources.

[39] Ibid.

increased 10.8 percent between September 2021 and September 2022.[40] In the San Francisco-Oakland-Hayward area, the metropolitan area closest to the service area, food prices rose 9.6 percent between August 2021 and August 2022.[41]

During the 2020–2021 school year, 45.7 percent of Sonoma County students and 56.7 percent of students in the Cloverdale Unified School qualified for free or reduced-price school lunches.[42]

Transportation

Cloverdale is the only community in the AVH service area with **local bus transportation**. The Sonoma County Transit system's Route 68 Cloverdale Shuttle makes 31 stops within the City of Cloverdale, albeit only on the western side of U.S. Highway 101. This routing underserves the city's lower-income population living east of the 101 corridor.

The Route 60 bus line connects Cloverdale to Healdsburg, which has the area's nearest hospital, and Santa Rosa, the county's principal source of specialty and tertiary hospital care. However, this line's schedule is designed for commuters: From 7:25 a.m. to 8:05 p.m., it runs every 32 to 55 minutes and makes up to 83 stops. Depending on the number of stops, a one-way trip from Cloverdale to Healdsburg can take 35 to 40 minutes, while a one-way trip to Santa Rosa can take 85 to 90 minutes.[43] This timetable is not well-suited to people who need to travel to healthcare providers, particularly if they are sick.

There is no bus service at all between Cloverdale and the City of Ukiah, the other source of some specialty and hospital-based care in the area.

The limited availability of public transportation adds to the car-dependency of the area, creating barriers to care as well as to employment, shopping, and hospital-based specialty

[40] U.S. Bureau of Labor Statistics, Western Information Office, "Consumer Price Index, West Region — September 2022," Oct. 13, 2022, *https://www.bls.gov/regions/west/news-release/consumerpriceindex_west.htm#table1*.

[41] U.S. Bureau of Labor Statistics, Western Information Office, "Consumer Price Index, San Francisco Area — August 2022," Sep. 13, 2022, *https://www.bls.gov/regions/west/news-release/consumerpriceindex_sanfrancisco.htm#table1*.

[42] California Dept. of Education, Free or Reduced-Price Meal (Student Poverty) Data; National Center for Education Statistics, Digest of Education Statistics (Jul. 2021), as cited on kidsdata.org, a program of Population Reference Bureau.

[43] Sonoma County Transit estimate information, via *https://sctransit.com*.

healthcare service access. An estimated 11.1 percent of service area renter households have no vehicle available.[44]

Housing Costs

Like much of California, Sonoma County has high housing costs, which have risen sharply over the past decade.

Since 1981, federal housing programs have used the "30-percent rule," which holds that low-income households should spend no more than 30 percent of their monthly income on housing.[45] In 2021, the majority of Sonoma County renters spent more than 30 percent of their household income on rent: 68 percent of the county's Black renters, 59 percent of Latino renters, 53 percent of white renters, and 52 percent of Asian renters.[46]

The magnitude of the increases is reflected in the HUD Fair Market Rents (FMR)[47] for the county. During the 10 years between 2013 and 2022, Sonoma County FMR rose between 46.4 percent and 81.0 percent, depending on the size of the housing unit.

Table 11: HUD Fair Market Rent by Home Type, Sonoma County, 2014–2023

Home Type	2014 Fair Market Rent (Sep. 2013)	2023 Fair Market Rent (Sep. 2022)	Percentage Increase, 2014–2023
Studio/efficiency	$820	$1,373	67.4%
One bedroom	$856	$1,549	81.0%
Two bedrooms	$1,251	$2,038	62.9%
Three bedrooms	$1,843	$2,851	54.7%
Four bedrooms	$2,160	$3,163	46.4%

Source: U.S. Dept. of Housing and Urban Development, Office of Policy Development and Research, "Fair Market Rents (40th Percentile Rents)," *https://www.huduser.gov/portal/datasets/fmr.html*

[44] U.S. Census Bureau, American Community Survey 5-year estimates, 2016–2020.

[45] U.S. Dept. of Housing and Urban Development, Office of Policy Development and Research (PDR), "Rental Burdens: Rethinking Affordability Measures," *PD&R Edge*, Sep. 22, 2014, *https://www.huduser.gov/portal/pdredge/pdr_edge_featd_article_092214.html*.

[46] Sonoma County Economic Development Board, *Sonoma County Indicators Report: Industry Report 2022* (Santa Rosa, Calif.: Sonoma County EDB, 2022), *https://sonomaedb.org/Microsites/Economic Development Board/Documents/Reports/2022/2022 Indicators Report Final w ADA.pdf*.

[47] U.S. Dept. of Housing and Urban Development, Office of Policy Development and Research, "Fair Market Rents (40th Percentile Rents)," *https://www.huduser.gov/portal/datasets/fmr.html*. HUD Fair Market Rents are 40th percentile estimates, meaning that 40 percent of rents are below and 60 percent of rents are above this dollar value. This measure is used by HUD for setting Section 8 housing assistance payments and as a measure of comparison between regions.

The most dramatic rent increases in this period followed in the wake of the 2017 Tubbs Fire, which occurred about a month after HUD issued its 2018 Fair Market Rent figures in September 2017. The Tubbs Fire destroyed 5,297 housing units in Sonoma County and damaged thousands more. Housing losses occurred in both middle-class neighborhoods and trailer parks full of low-income elderly residents.

In the summer of 2018, two other interrelated wildfires hit the area north of Cloverdale. The Mendocino Complex Fires in Lake and Mendocino Counties to the north grew to become the largest fire by area in California history, burning 459,123 acres before being fully contained in late September 2018. Although the area affected by the fires was mainly open land, 280 structures burned, including 157 residences, further reducing the area's housing supply. (See the Emergency Preparedness chapter for more information about wildfires in the area.)

By September 2018, HUD FMR had increased by about 17 percent from the year before.

Table 12: HUD Fair Market Rent (FMR) by Home Type, Sonoma County, 2018–2019

Home Type	2018 Fair Market Rent (Sep. 2017)	2019 Fair Market Rent (Sep. 2018)	Percentage Increase, 2018–2019
Studio/efficiency	$1,047	$1,224	16.9%
One bedroom	$1,213	$1,420	17.1%
Two bedrooms	$1,572	$1,843	17.2%
Three bedrooms	$2,288	$2,681	17.2%
Four bedrooms	$2,770	$3,246	17.2%

Source: U.S. Dept. of Housing and Urban Development, Office of Policy Development and Research, "Fair Market Rents (40th Percentile Rents)," https://www.huduser.gov/portal/datasets/fmr.html

By HUD definitions, households that spend 30 to 50 percent of their income on housing are "cost-burdened," while households that spend more than half of monthly income on housing have a "severe rent burden."[48]

In September 2013, HUD Fair Market Rent for a two-bedroom apartment in Sonoma County was $1,251 per month, which represented 62.9 percent of the monthly income of a family of four living at the 2014 federal poverty level (FPL). By September 2018, FMR for two-bedroom apartments had rise to $1,887 — 90.0 percent of the monthly income of a family of four living below the 2018 federal poverty level and 45.1 percent of the monthly income of a family of four living at 200 percent of FPL.

[48] U.S. Dept. of Housing and Urban Development, Office of Policy Development and Research (PDR), "Rental Burdens: Rethinking Affordability Measures," *PD&R Edge*, Sep. 22, 2014, https://www.huduser.gov/portal/pdredge/pdr_edge_featd_article_092214.html.

For 2022, FMR for a two-bedroom unit was $2,038, approximately 87.9 percent of the monthly income of a family of four living at the federal poverty level and 56.7 percent of the monthly income of a family of four living at 200 percent of FPL. HUD FMR for a two-bedroom home has risen a further 10.5 percent for 2023.

The housing cost situation for a single person or childless couple is no less dire. In mid-2014, FMR for a one-bedroom apartment in Sonoma County was $856 per month, 87.9 percent of the monthly income for a single person living at the federal poverty level and 32.2 percent of the income of a childless couple living at 200 percent of FPL. By September 2018, fair market rent for a one-bedroom apartment had climbed by 69 percent, to $1,420 per month — 132.5 percent of the monthly income of a single person living at the 2018 federal poverty level and 51.7 percent of the monthly income of a childless couple living at 200 percent of FPL.

In 2022, the Fair Market Rent of a one-bedroom unit was $1,549, 147.7 percent of the federal poverty level for a single person in 2022 and 50.8 percent of the income of two people living on an income of 200 percent of FPL. The 2023 HUD FMR for a one-bedroom unit released in September of 2022 shows a further 10.5 percent increase for 2023.

These trends mean that most low-income households in Sonoma County — and many households that are not considered low-income by FPL — are now experiencing severe rent burden by HUD definitions.

Figure 2: HUD Fair Market Rent by Home Type, Sonoma County, 2014–2022

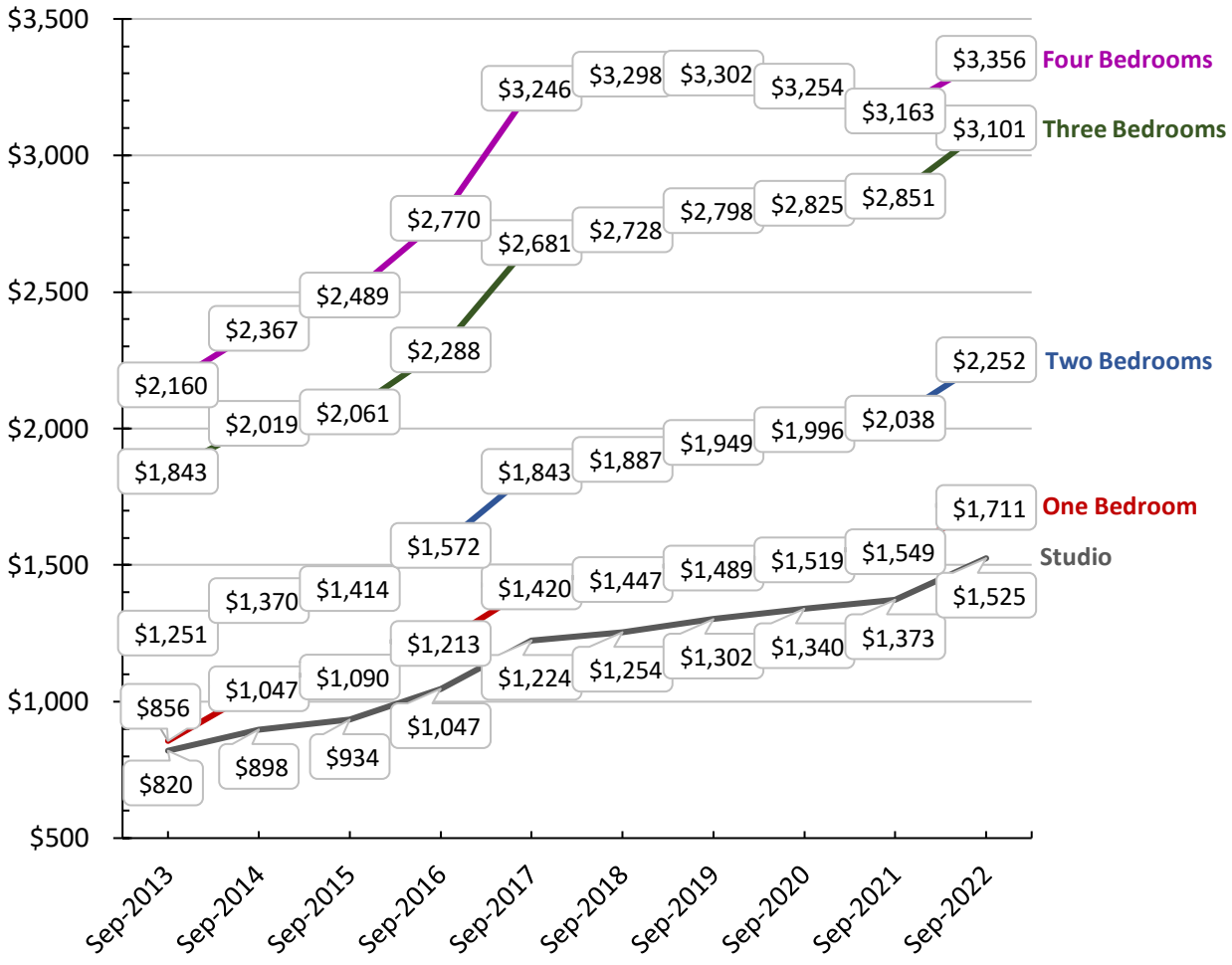
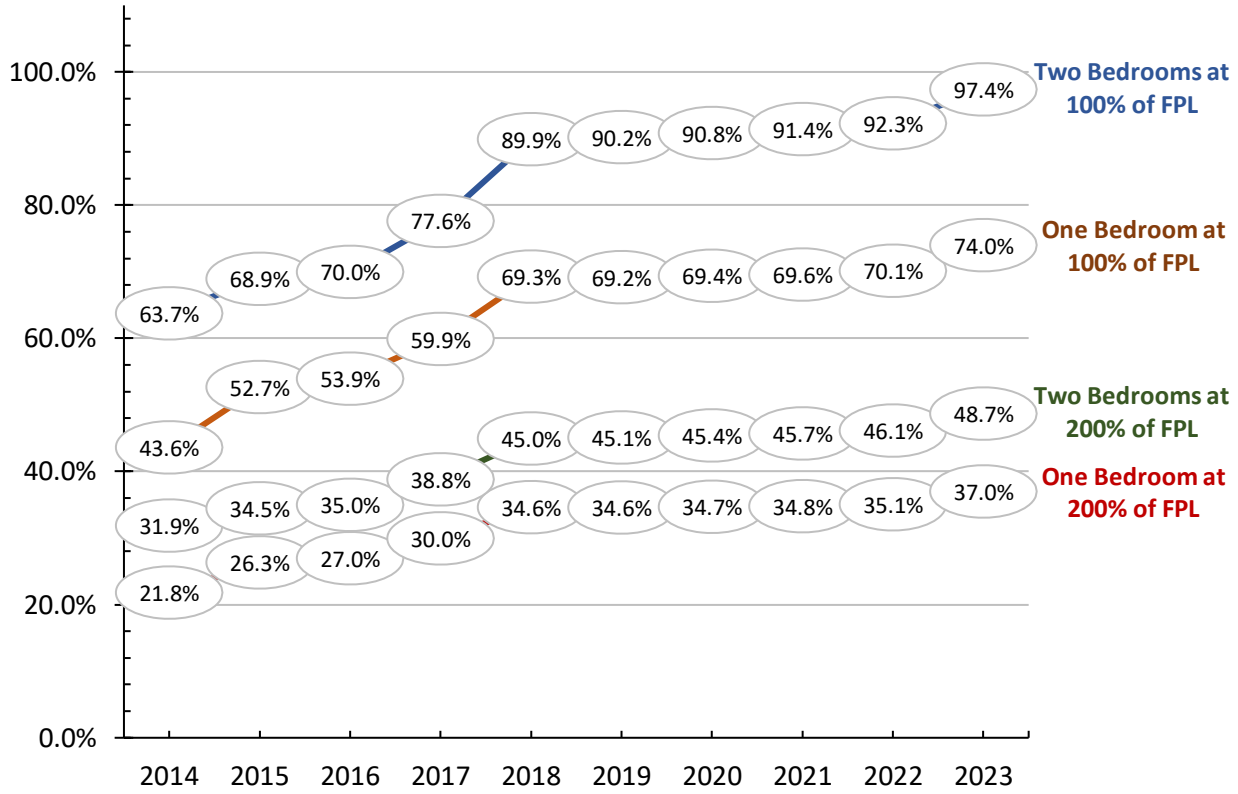


Table 13: HUD Fair Market Rent by Home Type, Sonoma County, 2018–2023

Home Type	2018	2019	2020	2021	2022	2023	% Increase, 2018–2023
Studio/efficiency	$1,224	$1,254	$1,302	$1,340	$1,373	$1,525	24.6%
One bedroom	$1,420	$1,447	$1,489	$1,519	$1,549	$1,711	20.5%
Two bedrooms	$1,843	$1,887	$1,949	$1,996	$2,038	$2,252	22.2%
Three bedrooms	$2,683	$2,728	$2,798	$2,825	$2,851	$3,101	15.6%
Four bedrooms	$3,246	$3,298	$3,302	$3,254	$3,163	$3,356	3.4%

Figure 3: HUD Fair Market Rent (FMR) as a Percentage of Monthly Income for a Family of Four by Home Type and Federal Poverty Level (FPL), Sonoma County, 2014–2023



Adding to the shortage of rental housing in Sonoma County is the fact that approximately 4.5 percent of the county's housing stock is used for short-term tourist rentals.[49]

As a matter of further concern, an alarming percentage of Sonoma County's maternal population is at risk of housing loss during pregnancy. In the most recent Sonoma County Maternal and Infant Health Assessment (MIHA) study period,[50] 6.7 percent of all expectant mothers and approximately 12.8 percent of expectant mothers below 200 percent of FPL reported having to move during their pregnancy because of problems paying rent or mortgage.

[49] U.S. Census data, reported in Sonoma County Economic Development Board, *Sonoma County Indicators Report: Industry Report 2022* (Santa Rosa, Calif.: Sonoma County EDB, 2022), *https://sonomaedb.org/Microsites/Economic%20Development%20Board/Documents/Reports/2022/2022%20Indicators%20Report%20Final%20w%20ADA.pdf*.

[50] MIHA Data Snapshots, *California: Health Indicators from the 2016–2018 Maternal and Infant Health Assessment (MIHA) Survey* (Sacramento, Calif.: California Dept. of Public Health, Maternal, Child, and Adolescent Health (MCAH) Division, 2022), *https://www.cdph.ca.gov/Programs/CFH/DMCAH/MIHA/Pages/Data-and-Reports.aspx*.

Additionally, approximately one in every 36 expectant mothers in the county (2.8 percent) experienced homelessness during their pregnancy.[51]

Housing Development

In response to this housing pressure, the City of Cloverdale has worked to identify parcels that can be used for the development of subsidized housing for low and moderate-income families.

To date, four projects have received approval: a 24-unit project for all ages, now completed; and a 75-unit project for all ages; a 24-unit senior apartment project; and a 223-unit project for all ages, which are in process. City officials are currently considering a number of other developments and sites.

Childcare Cost and Availability

Like housing costs, the high cost and limited supply of childcare presents economic challenges for families in Sonoma, Lake, and Mendocino Counties. In those counties and throughout the state, the demand for childcare exceeds the number of available spaces in licensed childcare facilities by at least a factor of five. The annual cost of childcare is also very high, as illustrated in the following table.

Table 14: Availability and Annual Cost of Childcare by Licensed Provider Type, California, Sonoma County, Mendocino County, and Lake County, 2019

Provider Type, Spaces, Cost	California	Sonoma County	Mendocino County	Lake County
LICENSED CHILD CARE CENTER				
Total spaces available	705,734	8,889	1,400	739
Annual cost, fulltime infant care	$17,384	$16,231	$11,567	$11,632
Annual cost, fulltime preschooler care	$12,168	$11,373	$8,692	$8,665
LICENSED FAMILY CHILD CARE HOME				
Total spaces available	271,101	3,226	742	678
Annual cost, fulltime infant care	$11,718	$11,054	$8,774	$8,505
Annual cost, fulltime preschooler care	$10,975	$10,388	$8,185	$7,902
ALL LICENSED FACILITIES				
Total spaces available	976,835	12,115	2,142	1,417
Est. number of children 0–12 (2018)	6,578,476	66,422	13,796	9,962
Number of children per space	6.7	5.5	6.4	7.0

Source: California Child Care Resource & Referral Network, 2019 California Child Care Portfolio, Feb. 2020, *https://rrnetwork.org/research/child_care_portfolio*

[51] Ibid.

The U.S. Department of Health and Human Services (HHS) uses 7 percent of household income as a benchmark for affordable childcare.[52] Although the average cost of childcare in Sonoma, Mendocino, and Lake Counties is below the state average, the cost of childcare significantly exceeds the HHS benchmark for many low-income households.

For example, in 2019, the average annual cost of fulltime infant care at a licensed family child care home in Sonoma County, $11,054, was 42.9 percent of the annual income of a family of four living at 100 percent of the 2019 federal poverty level ($25,750). The average annual cost of fulltime infant care at a licensed child care center, $16,231, was 63.0 percent of household income.[53]

High childcare costs have prompted California to offer state subsidies through the California Work Opportunity and Responsibility to Kids (CalWORKs) child care program.[54] In the 2021–2022 fiscal year, 311,539 children received subsidized childcare through CalWORKs,[55] a figure is that almost certainly well below the total number of California children whose families need such benefits. The state's nonpartisan Legislative Analyst's Office noted in 2021 that "demand for subsidized child care from low-income families has exceeded state funding for decades."[56]

As the pandemic continued, California used federal pandemic assistance to expand payments to childcare providers and limit increases in family copayments for subsidized childcare. However, some of that additional assistance is now being phased out.[57]

Because the total number of children who may need childcare greatly exceeds the total number of spaces currently available in many areas, families who need childcare — subsidized or not — may be placed on waiting lists or be forced to rely on care from license-exempt or unlicensed providers, or from other family members.

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[52] See the discussion at 81 FR 67438, *https://www.federalregister.gov/documents/2016/09/30/2016-22986/child-care-and-development-fund-ccdf-program*.

[53] California Child Care Resource & Referral Network, *2019 California Child Care Portfolio*, Feb. 2020, *https://rrnetwork.org/research/child_care_portfolio.*

[54] California Dept. of Social Services, Child Care and Development Division, "CalWORKS Child Care," *https://www.cdss.ca.gov/inforesources/calworks-child-care*.

[55] California Dept. of Social Services, Child Care and Development Division, "Child Care Transition Quarterly Report," October 2022, *https://www.cdss.ca.gov/Portals/9/CCDD/Oct2022%20Quarterly%20Report.pdf*, p. 11.

[56] Sara Cortez, "The 2021–22 Budget: Child Care Proposals," California Legislative Analyst's Office, Feb. 2021, *https://lao.ca.gov/reports/2021/4363/Child-Care-Proposals-021121.pdf*.

[57] California Dept. of Social Services, Child Care and Development Division, "Subsidized Child Care Stipends," *https://www.cdss.ca.gov/inforesources/child-care-and-development/subsidized-child-care-provider-stipends*.

Availability is a particular concern with regard to infant care. Although care for children aged 0–2 accounted for 38 percent of all childcare requests statewide in 2019, only 6.7 percent of available spaces in licensed care centers were open to children aged 2 and under.[58]

Finding childcare can also be a major problem for parents who work evenings or weekends. In 2019, no licensed child care centers in Sonoma, Mendocino, or Lake Counties offered evening, weekend, or overnight childcare. In Sonoma County, only 4 percent of licensed family child care homes offered evening or weekend, or overnight care. In Mendocino and Lake Counties, the figures were 25 percent and 30 percent respectively.[59]

The limited availability of childcare can create a barrier to family members' employment. For example, if childcare is not available, it may be difficult or impossible for both parents in a two-parent household to work at the same time, or for a single parent to work fulltime.

During the COVID-19 public health emergency, many licensed child care centers and some licensed family child care homes closed because of the risk of contracting or spreading COVID-19, as well as pandemic-related staff shortages. The Community Child Care Council of Sonoma County (Sonoma 4Cs) reported in October 2020 that five centers and 12 family child care homes in Sonoma County had permanently closed since the pandemic began, and an additional 228 licensed facilities had become inactive, reducing total spaces to only 5,497 countywide.[60]

The California Child Care Resource & Referral Network reports that the total number of licensed child care centers in California fell from 10,654 in 2019 and 2020 to 10,506 in 2021, while the number of licensed family child care homes fell from 26,173 to 25,205. The loss of these facilities reduced the total number of available childcare spaces in California from 976,835 in 2019 to 958,320 in 2021.[61]

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[58] California Child Care Resource & Referral Network, *2019 California Child Care Portfolio*, Feb. 2020, *https://rrnetwork.org/research/child_care_portfolio.*

[59] Ibid.

[60] Community Child Care Council of Sonoma County, Inc., data from 4Cs' My Child Care Plan Database as of Oct. 9, 2020, as reported in Sonoma County Economic Development Board, *Sonoma County Recovery Action Plan: COVID-19 2020: A Whole Community Approach*, Oct. 2020, *https://sonomaedb.org/Microsites/Economic%20Development%20Board/Documents/Archive/_Documents/Business%20Assistance/Economic%20Recovery%20Action%20Plan%20ENG%20ADA.pdf*.

[61] California Child Care Resource & Referral Network, as reported by Child Care Aware of America, *https://www.childcareaware.org/catalyzing-growth-using-data-to-change-child-care/*. California Child Care Resource & Referral Network has not published a complete California Child Care Portfolio since 2019, so newer county-level breakouts are not currently available.

Educational Attainment

Education is increasingly seen as a major factor in the financial wellbeing of individuals and families, and consequently in their health. In the human development index used for *A Portrait of Sonoma County*, education was one of the three weighted indices used to assess the county's overall health. The analysis in that 2014 report revealed pronounced differences in education attainment in the 12 neighborhood areas that comprise most of northern Sonoma County:

- The percentage of **adults who had not completed high school** ranged from a low of 8.3 percent (in the Old Healdsburg neighborhood) to a high of 30.1 percent (in East Cloverdale), a more than three-fold difference.

- The percentage of **adults who had completed at least a bachelor's degree** ranged from a high of 41.9 percent (in North Healdsburg) to a low of 12.4 percent (in East Cloverdale), another more than three-fold difference.

- The percentage of **adults with graduate or professional degrees** ranged from 18.4 percent (in North Healdsburg) to a low of only 2.9 percent (in East Cloverdale), a six-fold difference.[62]

According to U.S. Census American Community Survey projections, only 85.3 percent of adults over 25 in the AVH service area are high school graduates, compared to 89.1 percent of adults over 25 in Sonoma County as a whole. Service area adults are also less likely to have completed a bachelor's or higher degree: 28.6 percent have done so, compared to 36.4 percent of Sonoma County adults.

This difference has long-term implications for employment opportunities, income, health benefits, and health.

Table 15: Education Attainment, Sonoma County and AVH Service Area

Population Group	Sonoma County, #	Sonoma County, %	Service Area, #	Service Area, %
Population 25 years of age or older	359,119	100.0%	10,617	100.0%
High school graduate or higher	320,080	89.1%	9,057	85.3%
Bachelor's degree of higher	130,834	36.4%	3,036	28.6%

Source: U.S. Census Bureau, American Community Survey 5-year estimates, 2016–2020

[62] Sarah Burd-Sharps et al, *A Portrait of Sonoma County: Sonoma County Human Development Report 2014* (Brooklyn, N.C.: Measure of America (A project of the Social Science Research Council), May 2014), p. 47.

Data from PRAPARE® screening surveys of AVH patients[63] indicates that 40 percent of adult Hispanic patients are not high school graduates, compared to only 6 percent of non-Hispanic adult patients. Thirty percent of AVH's adult Hispanic patients and 28 percent of non-Hispanic adult patients have a GED. Only 21 percent of adult Hispanic patients have education beyond high school, compared to 62 percent of non-Hispanic adult patients.

This lower levels of education attainment reflects a number of demographic factors, including a higher proportion of first-generation immigrants, language barriers, and a family history of work in lower-paid sectors of the economy. A number of statistics suggest that this education gap will likely continue.

Students in the three counties that make up the AVH service area are more likely than students in California as a whole to **drop out before graduating from high school**. Statewide, 8.9 percent of students do not complete high school, compared to 11.8 percent of students in Sonoma County, 12.8 percent in Lake County, and 12.9 percent in Mendocino County.[64]

In all three counties, a smaller percent of high school grads complete college preparatory classes (defined as passing all courses required for admission to the University of California or California State University), making it less likely that they will pursue higher education. However, Sonoma County and in particular the Cloverdale Unified School District have shown some recent improvement in this area.

Table 16: High School Graduates Completing College Preparatory Courses, California, Service Area Counties, and Cloverdale Unified School District, Percentages, 2017–2019

Graduation Year	California	Sonoma County	Mendocino County	Lake County	Cloverdale Unified School District
2017	49.9%	37.3%	27.7%	28.3%	27.2%
2018	49.9%	37.3%	28.6%	24.0%	29.7%
2019	50.5%	38.2%	27.9%	26.1%	33.3%

Source: California Dept. of Education, Adjusted Cohort Graduation Rate and Outcome Data (Jun. 2020), as cited on kidsdata.org. Compiled data for later school years is not yet available.

[63] PRAPARE (Protocol for Responding to & Assessing Patients' Assets, Risks & Experiences) is a standardized survey tool designed to help healthcare providers assess patients' social determinants of health (SDOH), with the aim of improving health equity and individual health outcomes. PRAPARE is a registered trademark of the National Association of Community Health Centers, Inc., which developed this proprietary tool in partnership with the Association of Asian Pacific Community Health Organizations and other organizations. See https://prapare.org.

[64] California Dept. of Education, Dropouts by Race and Gender (2011–2017) (Jun. 2017) & Adjusted Cohort Graduation Rate and Outcome Data (Apr. 2021), as cited on kidsdata.org.

Fewer than half of California students meet the standards for their current grade level on the California Assessment of Student Performance and Progress (CAASPP) standardized tests prior to 9th grade. Sonoma County students score close to, and sometimes better than, peers statewide. However, students in Lake and Mendocino counties score far lower than do their peers statewide at all grade levels.

Table 17: Students Meeting or Exceeding Grade-Level Standard in Mathematics (CAASPP) by Grade Level, California and AVH Service Area Counties, Percentages, 2022

Grade Level	California	Sonoma County	Mendocino County	Lake County
Grade 3	43.5%	41.5%	29.1%	24.5%
Grade 4	38.3%	35.6%	24.1%	18.2%
Grade 5	31.6%	29.1%	16.8%	10.7%
Grade 6	32.5%	30.6%	18.2%	12.6%
Grade 7	32.0%	30.5%	19.4%	14.2%
Grade 8	29.2%	26.2%	15.4%	7.2%
Grade 11	27.0%	23.4%	16.5%	6.5%
All Grades	33.4%	31.0%	19.9%	13.6%

Source: California Dept. of Education, Test Results for California's Assessments (Oct. 2022). "S" means the data was suppressed for privacy reasons because of small sample size.

Students in Sonoma County score better on standardized CAASPP English Language Arts tests than do their peers statewide, but students in Lake and Mendocino Counties score substantially below students statewide.

Table 18: Students Meeting or Exceeding Grade-Level Standard in English Language Arts (CAASPP) by Grade Level, California and AVH Service Area Counties, Percentages, 2022

Grade Level	California	Sonoma County	Mendocino County	Lake County
Grade 3	42.2%	40.9%	26.1%	23.9%
Grade 4	44.2%	42.2%	29.4%	20.2%
Grade 5	47.1%	45.3%	28.3%	25.3%
Grade 6	45.1%	43.6%	31.1%	25.1%
Grade 7	49.2%	47.6%	35.9%	30.6%
Grade 8	46.6%	43.4%	30.6%	21.3%
Grade 11	54.8%	51.4%	41.5%	38.0%
All Grades	47.1%	44.9%	31.9%	26.2%

Source: California Dept. of Education, Test Results for California's Assessments (Oct. 2022)

Students who are English learners are much less likely to pass the standardized English tests than are fluent or proficient English speakers or those who speak only English. However, even students in Lake and Mendocino Counties who are fluent, proficient, or English-only speakers are substantially less likely to pass than are their peers statewide or in Sonoma County.

Table 19: Students Meeting or Exceeding Grade-Level Standard in English Language Arts (CAASPP) by English Language Fluency, California and AVH Service Area Counties, Percentages, 2022

English Language Fluency	California	Sonoma County	Mendocino County	Lake County
English learners	12.5%	11.5%	5.6%	3.5%
Fluent English, proficient, and English only	54.6%	52.5%	2.2%	30.3%

Source: California Dept. of Education, Test Results for California's Assessments (Oct. 2022)

The COVID-19 public health emergency made education more difficult for public school students at all levels. In March 2020, public health orders kept students from attending school in person. This was followed by periods of in-person classes, online classes, parttime classes, and other variations. While virtual classes have been safer from a public health standpoint, the technology required to attend those classes (including both equipment and access to high-speed Internet service) was new to some households, creating additional barriers to educational equity.

The Family Experiences During the COVID-19 Pandemic questionnaire series found that in July 2021, shortly after the end of the 2020–2021 school year, almost half (46.2 percent) of California caregivers with school-age children (aged 5–17) reported being either "moderately concerned" or "extremely concerned" that their child was falling behind in school. In Bay Area counties (including Sonoma County), the percentage was even higher: 48.9 percent.[65]

Subsequent research supports that concern. In 2022, the National Center for Education Statistics (NCES) conducted a special administration of the National Assessment of Education Progress (NAEP) Long-Term Trend (LTT) reading and mathematics assessments for age 9 students to examine achievement during the COVID-19 pandemic. That data reveals that average scores for age 9 students in 2022 were 5 points lower in reading and 7 points lower in mathematics than in 2020.

This represents the largest decline in reading scores recorded since 1990, and the first-ever drop in mathematics scores. Furthermore, the scores of lower-performing students (those

[65] American Academy of Pediatrics, Centers for Disease Control and Prevention, Prevent Child Abuse America, and Tufts Medical Center, *Family Experiences During the COVID-19 Pandemic* questionnaire (Jul. 2021), including California oversample courtesy of the Lucile Packard Foundation for Children's Health and California Essentials for Childhood Initiative (California Dept. of Public Health, Injury and Violence Prevention Branch and California Dept. of Social Services, Office of Child Abuse Prevention), as cited on kidsdata.org.

below the 25th percentile) fell farther than did those of their higher-performing peers (those at or above the 75th percentile).[66]

It may be some time before it is possible to fully assess impact of the pandemic on student achievement. California suspended standardized testing for the 2019–2020 school year due to COVID-19 restrictions, while the tests given in the 2020–2021 school year were shorter than in previous years, participation was uneven, and the aggregate results were reported differently. Consequently, no 2020 CAASPP data is available, and the California Department of Education warns that 2020–2021 results are not directly comparable to prior years.[67]

However, comparing 2022 data with 2019 pass rates reveals substantial declines in pass rates across most grade levels, as shown in the tables below.

Table 20: Students Meeting or Exceeding Grade-Level Standard in Mathematics (CAASPP) by Grade Level, California (CA), Sonoma County (SC), Mendocino County (MC), and Lake County (LC), Percentages, 2019 vs. 2022

Grade Level	CA, 2019	CA, 2022	SC, 2019	SC, 2022	MC, 2019	MC, 2022	LC, 2019	LC, 2022
Grade 3	50.2%	43.5%	47.8%	41.5%	36.8%	29.1%	29.7%	24.5%
Grade 4	44.9%	38.3%	44.4%	35.6%	31.1%	24.1%	27.7%	18.2%
Grade 5	38.0%	31.6%	36.3%	29.1%	25.0%	16.8%	17.3%	10.7%
Grade 6	38.5%	32.5%	38.2%	30.6%	21.0%	18.2%	21.4%	12.6%
Grade 7	37.9%	32.0%	36.1%	30.5%	22.9%	19.4%	18.9%	14.2%
Grade 8	36.6%	29.2%	33.8%	26.2%	22.7%	15.4%	14.3%	7.2%
Grade 11	32.2%	27.0%	28.9%	23.4%	21.9%	16.5%	12.0%	6.5%
All Grades	39.7%	33.4%	37.9%	31.0%	25.9%	19.9%	20.2%	13.6%

Source: California Dept. of Education, Test Results for California's Assessments (Feb. and Oct. 2022). 2019 data as cited on kidsdata.org.

Table 21: Students Meeting or Exceeding Grade-Level Standard in English Language Arts (CAASPP) by Grade Level, California (CA), Sonoma County (SC), Mendocino County (MC), and Lake County (LC), Percentages, 2019 vs. 2022

Grade Level	CA, 2019	CA, 2022	SC, 2019	SC, 2022	MC, 2019	MC, 2022	LC, 2019	LC, 2022
Grade 3	48.5%	42.2%	47.7%	40.9%	34.9%	26.1%	31.1%	23.9%
Grade 4	49.5%	44.2%	47.9%	42.2%	36.1%	29.4%	33.2%	20.2%
Grade 5	51.7%	47.1%	51.8%	45.3%	39.0%	28.3%	33.5%	25.3%

[66] U.S. Dept. of Education, National Center for Education Statistics, "Fast Facts: Long-term trends in reading and mathematics achievement," Sep. 12, 2022, *https://nces.ed.gov/fastfacts/display.asp?id=38*.

[67] California Dept. of Education, California Assessment of Student Performance and Progress (CASPP, "CDE Releases Student Data for 2020–21 That Show Impacts of COVID-19 on Schools" [news release], Jan. 7, 2022, *https://www.cde.ca.gov/nr/ne/yr22/yr22rel03.asp*.

Grade Level	CA, 2019	CA, 2022	SC, 2019	SC, 2022	MC, 2019	MC, 2022	LC, 2019	LC, 2022
Grade 6	48.5%	45.1%	48.9%	43.6%	34.7%	31.1%	32.7%	25.1%
Grade 7	51.4%	49.2%	51.9%	47.6%	38.9%	35.9%	31.3%	30.6%
Grade 8	49.4%	46.6%	48.0%	43.4%	39.9%	30.6%	30.3%	21.3%
Grade 11	57.3%	54.8%	54.8%	51.4%	47.5%	41.5%	41.4%	38.0%
All Grades	50.9%	47.1%	50.1%	44.9%	38.7%	31.9%	33.3%	26.2%

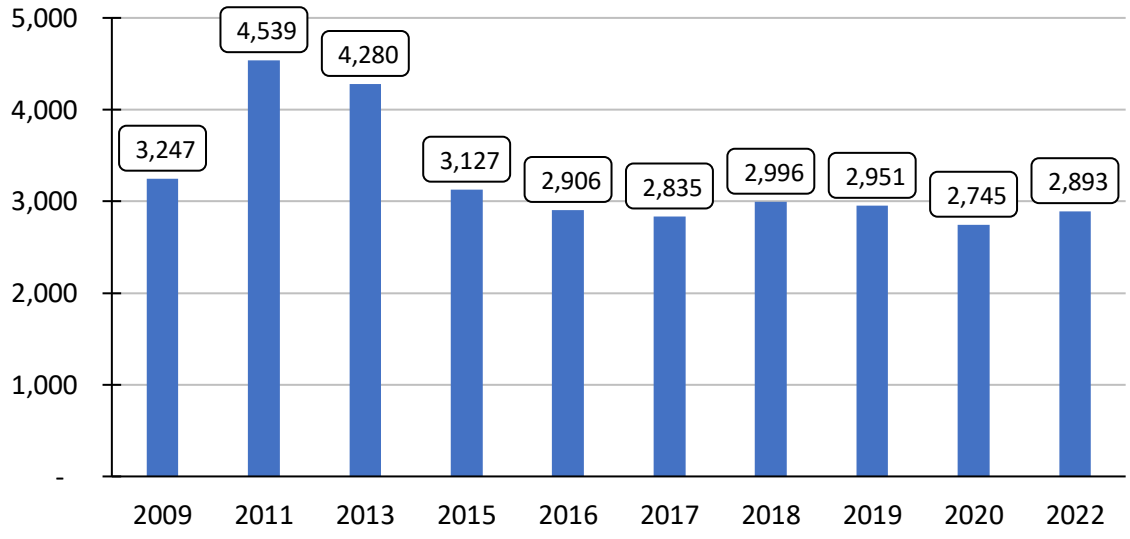
Source: California Dept. of Education, Test Results for California's Assessments (Feb. and Oct. 2022). 2019 data as cited on kidsdata.org.

Population Experiencing Homelessness

Sonoma County conducts a regular "point in time" census of its homeless population, in accordance with U.S. Department of Housing and Urban Development (HUD) requirements. The two most recent counts were conducted in February 2020 and February 2022. (There was no count in 2021.)

According to these censuses, the number of homeless individuals in Sonoma County grew 5.4 percent during that period, from 2,745 individuals in 2020 to 2,893 individuals in 2022. However, the total number of homeless individuals counted remains well below the peak of 4,359 recorded in 2011, during the last recession.

Figure 4: Point-in-Time Homeless Counts, Sonoma County, 2009–2021



Source: Applied Survey Research, *County of Sonoma 2022 Point in Time Count Results*. No point-in-time count was conducted in 2021.

Local service agencies and advocates generally consider the point-in-time figures to be undercounts of the number of persons experiencing homelessness, for several reasons:

First, the total reported is lower than the number of homeless patients which the six federally funded health centers in Sonoma County report serving in a year in their annual Uniform Data System (UDS) reports. Those six organizations reported a total of 3,397 homeless patients in calendar 2020 and 3,560 homeless patients in calendar year 2021. Adding the number of homeless individuals served by organizations that are not required to submit UDS reports, such as the Sonoma County Indian Health Project (SCIHP) and County of Sonoma Health Services, would likely make the total even greater.

Second, the 5.4 percent increase recorded is well below the increase across all such point-in-time censuses in 2022. Statewide, these censuses counted 173,800 homeless individuals, an increase of 22,500 (14.9 percent) over the previous census in 2020.[68]

Third, the point-in-time methodology depends to some extent on homeless shelters, and many areas of the county (especially rural areas) lack any shelters. Moreover, some homeless individuals may stay in places that are difficult for volunteer census-takers to reach or identify (e.g., in cars or vans), and some individuals may be reluctant to be counted.

Acknowledging the limitations of the point-in time count, the authors of the county's point-in-time census report also calculate an annualized estimate of total "unique homelessness experiences." (An "experience" is defined as a period of continuous homelessness for a single individual.) The annualized estimate for 2022 was 6,464 unique homelessness experiences,[69] which may be closer to the true number of homeless individuals in the county.

Despite their limitations, the point-in-time counts remain the most detailed available enumerations of the county's homeless population and its characteristics.

HOMELESS POPULATION BREAKDOWN

Sheltered vs. Unsheltered

Fewer than two out of five of homeless individuals counted in 2020 and 2022 were in shelters: 1,043 (35 percent) in 2020 and 805 individuals (28 percent) in 2022. The rest were unsheltered (which included individuals living in vehicles, in encampments, or in abandoned buildings, as well as those sleeping rough on the street).

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[68] Manuela Tobias, "California Homeless Population Grew by 22,000 Over Pandemic," CalMatters, Oct. 6,2022. *https://calmatters.org/housing/2022/10/california-homeless-crisis-latinos/*.

[69] Applied Survey Research, *County of Sonoma 2022 Point-in-Time Count Results*, 2022, *https://sonomacounty.ca.gov/Main%20County%20Site/Development%20Services/CDC/Homeless%20Services/Homeless%20Data/County%20of%20Sonoma%202022%20Point-in-Time%20Count%20Results.pdf*.

Of the homeless persons counted during the night of the 2022 census, 18 percent were in vehicles, 46 percent were outdoors, 19 percent were in tents, 2 percent were in abandoned buildings, 9 percent were in shelters, and 6 percent were in motels or hotels.

The 805 persons counted in shelters represents a 23 percent drop (238 individuals) in the sheltered homeless count from 2020. This would suggest that most or all of the increase in homelessness reported in 2022 was among unsheltered persons; the total number of unsheltered individuals counted rose from 1,702 to 2,088. There may be many reasons for this drop, including the effects of the COVID-19 pandemic.

The homeless population most likely to be sheltered was homeless families with children. The 2022 point-in-time count recorded 48 homeless families with 155 members, of whom only five were unsheltered. That is substantially lower than the 235 individuals in families with children recorded in 2020 (of whom eight were unsheltered).

Table 22: Sonoma County Homeless Population, Sheltered and Unsheltered, Point-in-Time Count, 2020 and 2022

Category	In Shelter, 2020	Not in Shelter, 2020	Total, 2020	In Shelter, 2022	Not in Shelter, 2022	Total, 2022
All homeless	1,043	1,702	2,745	805	2,088	2,893
In families with children	227	8	235	150	5	155
Unaccompanied children (<18) and transition-age youth (18–24)	57	304	361	35	501	536
Chronically homeless	174	334	508	224	501	725
Veterans	47	92	139	45	146	191

Table 23: Sonoma County Homeless Population, Sheltered and Unsheltered, Point-in-Time Count, 2020 and 2022

Category	In Shelter, 2020	Not in Shelter, 2020	In Shelter, 2022	Not in Shelter, 2022
All homeless	36%	64%	28%	72%
In families with children	97%	3%	97%	3%
Unaccompanied children (<18) and transition-age youth (18–24)	16%	84%	7%	93%
Chronically homeless	40%	60%	31%	69%
Veterans	35%	65%	24%	76%

Source: Applied Survey Research, County of Sonoma 2022 Point in Time Count Results

As the tables above indicate, the number of unaccompanied homeless children under age 18 and transition-age young adults (aged 18–24) rose from 361 in 2020 to 536 in 2022. These are extremely vulnerable populations, 97 percent of whom were unsheltered in both censuses.

The number of persons who met the HUD definition of "chronically homeless individuals"[70] rose from 508 in 2020 to 725 in 2022, a 43 percent increase.

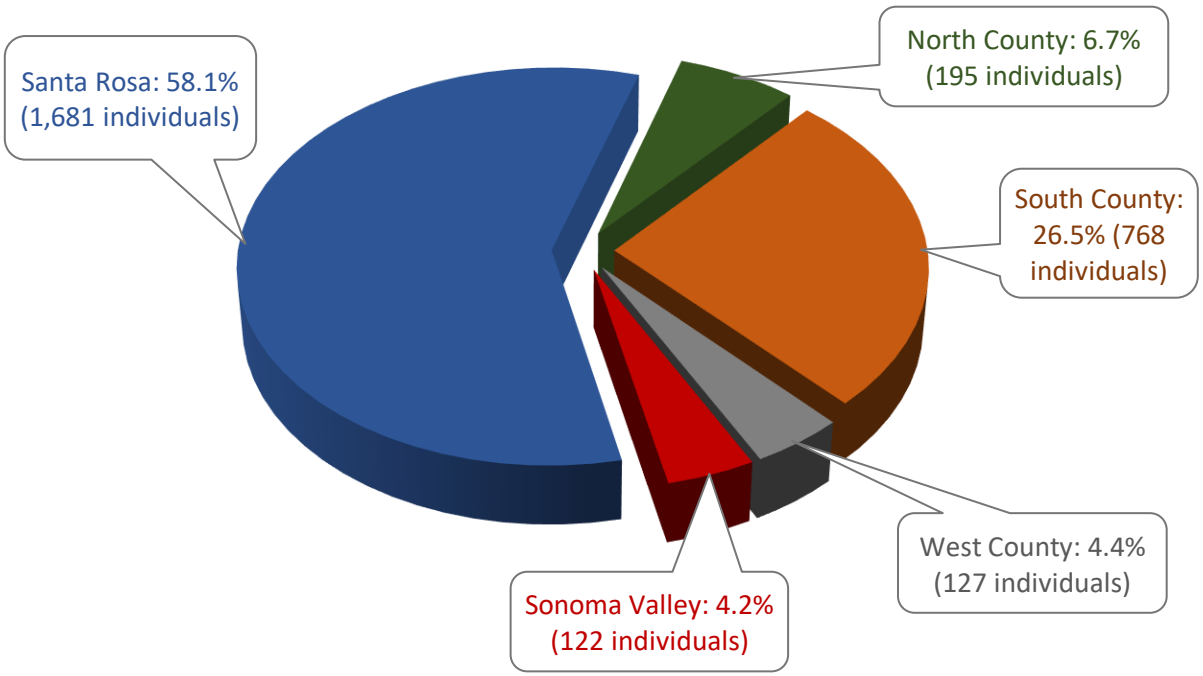
More than two-thirds (69 percent) of chronically homeless individuals were unsheltered in the 2022 count.

Geographic Distribution

Almost three-fifths (58.1 percent) of the homeless individuals counted in 2022 were in the Santa Rosa area (which includes the City of Santa Rosa and surrounding unincorporated areas).

Of the remainder, 6.7 percent were in the North County area (which includes Cloverdale, Healdsburg, Windsor, and unincorporated areas); 26.5 percent were in the South County area (which includes Cotati, Petaluma, Rohnert Park, and unincorporated areas); 4.4 percent were in the West County area (which includes the City of Sebastopol and unincorporated areas); and the remaining 4.2 percent were in the Sonoma Valley area (which includes the City of Sonoma and unincorporated areas).

Figure 5: Sonoma County Homeless Individuals by Region, 2022 Point-in-Time Count



[70] HUD defines a chronically homeless individual as someone who has experienced homelessness for a year or longer, or who has experienced at least four episodes of homelessness in totaling 12 months in the last three years, and also has a disabling condition that prevents them from maintaining work or housing.

Homeless Demographics

The large majority of homeless individuals in the two most recent point-in-time counts were men (73 percent in 2020 and 63 percent in 2022).

In general, the race/ethnicity of homeless individuals included the two most recent counts was broadly consistent with the county's overall demographics. Sixty-seven percent of the individuals counted in the 2022 point-in-time census were white, up from 64 percent in 2020. Thirteen percent identified as multi-racial or other, down from 19 percent in 2020.

Twenty-five percent of the individuals counted in both the 2020 and 2022 censuses were Hispanic/Latino. However, the homeless census treat Hispanic/Latino ethnicity separately from race (that is, Hispanic/Latino individuals may also be identified as white, multiracial, etc.), so the census report's race/ethnicity figures are not directly comparable to U.S. Census population projections or other demographic data.

Survey Responses

Along with the point-in-time counts, Sonoma County conducts in-person surveys to assess other characteristics of the homeless population. There were 438 respondents in 2020 and 428 in 2022, down from 520 in 2019 and 519 in 2018.

Approximately one-third of respondents (31 percent in 2020 and 32 percent in 2022) said they were experiencing homelessness for the first time. This was slightly higher than in 2019 and slightly lower than in 2018.

Of respondents who reported being homeless for the first time in 2022:

- 14 percent were under age 18.
- 20 percent were aged 18–24.
- 50 percent were ages 25–49.
- 16 percent were aged 50 and older.

Sixty-nine percent of 2022 respondents and 62 percent of 2020 respondents said their current episode of homelessness had lasted for a year or more.

Sixty-eight percent of 2022 respondents said they had lived in Sonoma County prior to losing housing, while 27 percent had resided elsewhere in California. Only 5 percent said they had lived out of state before becoming homeless.

The most common reason 2020 and 2022 respondents reported for becoming homeless was a lost job (22 percent in 2020 and 23 percent in 2022). However, 28 percent of 2020 respondents and 19 percent of 2022 respondents said they had at least some employment, whether fulltime, parttime, or seasonal.

When asked about the obstacles to their obtaining permanent housing, the most common response (given by 70 percent of 2020 respondents and 63 percent of 2022 respondents) was inability to afford rent.

Other Survey Results

Almost one-quarter (24 percent) of 2022 respondents described themselves as lesbian, gay, bisexual, transgender, queer, or other (LBGTQ+). This is significantly greater than recent national estimates of the overall LGBTQ population (which Gallup put at 4.5 percent in 2018[71]), reflecting the disproportionate economic vulnerability of LGBTQ Americans. It is also higher than the 16 percentage of 2020 survey respondents who identified as LGBTQ.

Twenty-two percent of 2022 respondents reported past experience of domestic violence, down from 39 percent in the 2020 survey.

Seventeen percent of 2022 survey respondents said they had at some point traded sex for money or shelter, up from 15 percent in the 2020 survey. Five percent of 2022 respondents said they had been victims of sex trafficking (i.e., forced to participate in commercial sex), up from 4 percent in the 2020 survey.

As in the 2020 survey, 17 percent of respondents in 2022 reported a history of being in the foster care system.

Many survey respondents reported health conditions that affect their housing stability or employment. In the 2022 survey:

- 42 percent of respondents reported having a disabling condition, as defined by HUD.[72]
- 40 percent reported that they had drug or alcohol problems.

[71] Frank Newport, "In U.S., Estimate of LGBT Population Rises to 4.5%," Gallup, May 22, 2018, *https://news.gallup.com/poll/234863/estimate-lgbt-population-rises.aspx*.

[72] The executive summary of the 2022 homeless census report explains that by HUD definitions, a disabling condition is "a development disability, HIV/AIDS, or a long-term physical or mental impairment that impacts a person's ability to live independently but could be improved with stable housing."

- 40 percent reported having psychiatric or emotional conditions.
- 29 percent had a physical disability.
- 36 percent reported suffering from post-traumatic stress disorder (PTSD).
- 26 percent had chronic health conditions.
- 14 percent had suffered a traumatic brain injury.
- 4 percent had HIV/AIDS.

Family and Informal Caregivers

As a population ages, more people suffer long-term illness, chronic conditions, disabilities, or other impairments that limit their ability to perform major life activities without assistance.

This is a growing concern both nationally and statewide — not least in Sonoma County, where persons 65 and older are the fastest-growing population group. Between 2010 and 2020, the percentage of county residents 65 and older grew 51.1 percent, from 14 percent in 2010 to 21.1 percent in 2020. By 2020, the percentage of Sonoma County residents over 65 significantly exceeded that of California (15.2 percent) or the U.S. population (16.8 percent).[73]

Similarly, in the AVH service area, 21 percent of the population was over age 65 by 2020. Additionally, an estimated 12.8 percent of service area residents (of all age groups) have a recognized disability, compared to 11.7 percent of Sonoma County residents, 8.7 percent of all California residents, and 8.7 percent of the U.S. population.[74] (See the Health Status chapter for more information about the demographics of the service area.)

Consequently, **a substantial portion of the service area population may need supportive care, either currently or in the foreseeable future**. Depending on the individual, the care needed may be temporary or ongoing, and may take many different forms, ranging from periodic assistance with certain tasks (e.g., laundry or grocery shopping) or rides to medical appointments to fulltime invalid care.

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[73] U.S. Census data via USAFacts, *https://usafacts.org/data/topics/people-society/population-and-demographics/our-changing-population/state/california/county/sonoma-county*, and Loraine A. West et al, *65+ in the United States: 2010* (Special Studies P23-212) (Washington D.C.: U.S. Census Bureau, June 2014), *https://www.census.gov/content/dam/Census/library/publications/2014/demo/p23-212.pdf.*

[74] U.S. Census Bureau, American Community Survey 5-year estimates, 2016–2020.

Paid professional supportive care is very expensive, may not be readily available (particularly in rural areas), and is rarely covered by insurance except in certain narrow defined circumstances. All of these factors may be prohibitive for many elderly or disabled individuals who need care.

That gap is often filled by informal caregivers, who also play a key role in the relationship between AVH and the community it serves. (Informal caregivers are often described as "family caregivers," since such supportive care is commonly provided by a family member. However, informal caregivers can also include neighbors, friends, or loved ones who are not necessarily members of the care recipient's family.)

A 2011 health policy brief from UCLA Center for Health Policy Research estimated that there were about 6.2 million informal caregivers in California.[75] According to a subsequent policy brief released a decade later, **by 2020, the estimated number of informal caregivers had grown to about 6.7 million** — more than one in five California adults.[76] That brief does not present any county-specific estimates, but even a far more conservative calculation (e.g., one in ten adults) would mean that more than 40,000 people in Sonoma County and more than 1,000 people in the AVH service area are acting as informal caregivers.

A 2017 AARP Public Policy Institute study estimated the annual economic value of unpaid contributions by informal caregivers at $63 billion in California and approximately $470 million nationwide.[77]

According to the 2020 California Health Interview Survey (CHIS), 86 percent of recipients of informal care in California are members of the caregiver's family, most commonly a parent (47 percent), grandparent (8 percent), or spouse or partner (13 percent).

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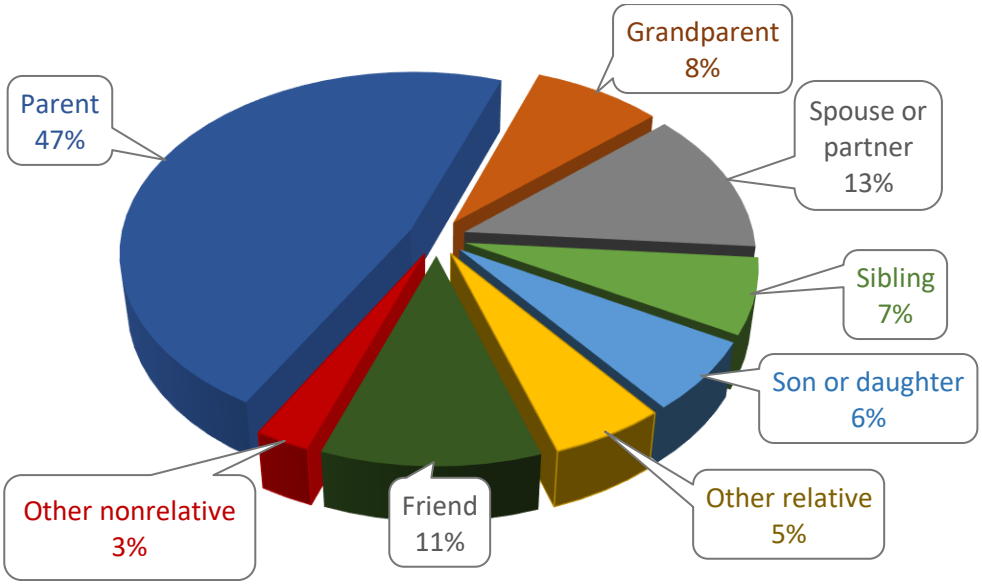
[75] Geoffrey Hoffman and Carolyn A. Mendez-Luck, *Stressed and Strapped: Caregivers in California* (Los Angeles: UCLA Center for Health Policy Research, Sep. 2011), retrieved from *https://www.uclahealth.org/news/caregivers-for-friends-relatives-suffer-emotional-and-financial-strain*. This health policy brief is based on data from the 2009 California Health Interview Survey (CHIS).

[76] Sean Tan et al, *Who Is Caring for the Caregivers? The Financial, Physical, and Mental Health Costs of Caregiving in California* (Los Angeles: UCLA Center for Health Policy Research, Dec. 2021), *https://healthpolicy.ucla.edu/publications/search/pages/detail.aspx?PubID=2252*. This health policy brief is based on data from the 2020 California Health Interview Survey (CHIS).

[77] Susan C. Reinhard et al, *Valuing the Invaluable: 2019 Update: Charting a Path Forward* (Washington, D.C.: AARP Public Health Policy Institute, Nov. 2019). doi:10.26419/ppi.00082.001

Figure 6: Relationship of Care Recipient to Caregiver, California, 2020



Source: 2020 California Health Interview Survey

As indicated in the following table, the large majority of care recipients are 65 or older, while most caregivers (81.1 percent) are nonelderly adults (aged 18–64).

Table 24: Informal Caregivers and Care Recipients by Age Group, California, 2020

Age Group	Percentage of Caregivers	Percentage of Care Recipients
0–17	N/A	3.3%
18–44	41.2%	14.0%
45–64	38.9%	18.0%
65+	20.0%	64.7%

Source: 2020 California Health Interview Survey. Percentages may not add to 100 percent due to rounding.

Approximately 58 percent of informal caregivers in California are women. The racial and ethnic demographics of caregivers cross all race/ethnic groups.

Most (53.4 percent) caregivers have a fulltime job, while another 9.7 percent work parttime. For many, their caregiving role is in essence an additional parttime job: Almost half (48.9 percent) spend at least six hours a week caregiving, while about one in four (24.5 percent) spend 20 or more hours a week.

That time is usually unpaid; only 8.8 percent receive any compensation for the hours they spend assisting a care recipient. Since fewer than half of all care recipients live with the person who provides care, the caregiver may also need to "commute" multiple times a week to assist the care recipient, adding to the time commitment involved.

Although informal caregivers are not necessarily low-income — most (57.6 percent) have incomes over 300 percent of the federal poverty level (FPL) — caregiving may suffer significant economic consequences. In the 2020 CHIS, 44.4 percent of caregivers reported experiencing some level of **financial stress due to caregiving**. The likelihood of financial stress was higher for caregivers with lower incomes (under 300 percent of FPL) and rose with the number of hours spent on care each week.

A 2019 study[78] found that "intensive" caregivers (defined as those who provide 20 or more hours of care per week) are significantly more likely than non-caregivers to reduce their working hours or schooling, take unpaid time off, quit a job, or retire early. Such economic "spillover" effects are in addition to direct out-of-pocket costs a caregiver incurs for care-related household and medical expenses. A 2021 AARP study estimated that caregivers across the U.S. spend an average of $7,242 per year on out-of-pocket expenses related to the care they provide.[79]

Caregiving can also have health consequences for caregivers. In the 2020 CHIS,[80] almost one in seven caregivers (13.5 percent) reported that they had suffered **physical or mental health problems due to caregiving** in the past 12 months. For younger caregivers (aged 18–44), the figure was even higher: 17.2 percent, compared to 11.1 percent for adults 45–64 and 10.5 percent for adults 65 and older.

One reason younger caregivers tend to experience higher rates of physical or mental stress than older ones may be that nonelderly adults are more likely to be juggling a broader range of responsibilities. For example, a 42-year-old caregiver might be working fulltime, caring for an elderly parent, and also providing childcare for a young grandchild while the child's parents are at work, leaving little time for rest or self-care. In such scenarios, the caregiver may face added stress from the awareness that faltering in those responsibilities could have calamitous results for everyone involved.

Elderly caregivers may face a different set of challenges. According to earlier CHIS data,[81] informal caregivers 65 and older are much more likely than nonelderly adults to live with the

[78] Josephine C. Jacobs et al, "Economic Spillover Effects of Intensive Unpaid Caregiving," *PharmacoEconomics* 2021;37(4):553–62. doi:10.1007/s40273-019-00784-7

[79] Lauren Skufca and Chuck Rainsville, *Caregiving Out-of-Pocket Costs Study* (Washington, D.C.: AARP Research, June 2021). doi:10.26419/res.00473.001

[80] Hoffman and Mendez-Luck, based on 2009 CHIS data. The more recent 2020 CHIS data does not provide age group breakdowns of caregiver-recipient relationships or whether the caregiver and recipient live together.

[81] Tan et al.

person for whom they provide care, who is typically a spouse or partner. While this may involve less need to balance concurrent time commitments, an elderly caregiver may have his or her own health problems and age-related physical limitations, and may have limited financial and social resources upon which to draw. Furthermore, both caregiver and care recipient may be endangered if the caregiver suffers a serious illness or injury.

Another frequent problem facing caregivers of all ages is trying to manage a care recipient's medical condition with little or no appropriate training. This may include a variety of relatively complex tasks, such as administering medications, changing dressings, assessing the symptoms of a chronic condition, and maintaining medical equipment (e.g., cleaning CPAP machines). **Caregivers are typically not trained nurses or home health aides, but they may be required to perform similar functions**, often with no more guidance than they can find with an Internet search.

About one-fifth of 2020 CHIS respondents reported that they were caring for someone with Alzheimer's disease or other cognitive impairment.[82] Dealing with dementia and cognitive decline is often taxing for caregivers and can greatly compound the difficulty of managing other medical conditions. For example, if a care recipient suffers from confusion and forgetfulness, the caregiver may have to take over the responsibility of administering medications, since the care recipient may be unable to do so reliably.

A pandemic like the COVID-19 public health emergency creates additional risks and stressors for caregivers and care recipients. COVID-19 infection can be debilitating even if the individual eventually recovers, and caring for a person with a potentially deadly communicable disease is high-risk even in a clinical setting with far more resources than are available to an informal caregiver at home. Since many caregiving activities involve extended close contact, which can carry a significant risk of transmission even if all parties are fully vaccinated, caregivers may also be obliged to limit their other activities and social contacts to protect care recipients, who may be at high risk of serious illness or death due to age and/or other medical conditions.

Although the 2020 CHIS data does not directly address the effects of the pandemic,[83] a 2021 Centers for Disease Control and Prevention study analyzed data from cross-sectional surveys of

[82] Ibid.

[83] 2020 CHIS interviews were conducted throughout the 2020 calendar year, beginning before the COVID-19 public health emergency was declared in California. As a result, the data does not fully reflect — and does not attempt to quantify — the full impact of the pandemic on caregivers during the study period.

unpaid caregivers, administered between December 2020 and February-March 2021 as part of the COVID-19 Outbreak Public Evaluation (COPE) Initiative.[84]

That study found that almost 70 percent of all caregivers (including those caring for adults, for minor children, or both) reported adverse mental health symptoms, including anxiety and depression (55.3 percent), COVID-19 trauma- and stressor-related disorders (53.8 percent),[85] passive suicidal ideation (39.3 percent), and serious suicidal ideation (32.2 percent).

Factors contributing to adverse mental health symptoms included needing to decrease living expenses to pay for things, having family disagreements about not helping enough, feeling underprepared for caregiver situations, and resenting their caregiving role.

The study's authors noted that "caregivers who had someone to rely on for support had lower odds of experiencing any adverse mental health symptoms."

[84] Mark É. Czeisler et al, "Mental Health Among Parents of Children Aged <18 Years and Unpaid Caregivers of Adults During the COVID-19 Pandemic — United States, December 2020 and February–March 2021," *Morbidity and Mortality Weekly Report* 2021;70(24):879–887. doi:10.15585/mmwr.mm7024a3

[85] The American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V)* lists a number of trauma- and stressor-related disorders (TSRDs), including, among others, posttraumatic stress disorder (PTSD), acute stress disorder (ASD), and adjustment disorders.

PART TWO: Population Served

Overview

This chapter examines the demographics of the patients served by Alexander Valley Healthcare (AVH), comparing the last two years prior to the COVID-19 pandemic, **2018–2019**, with the first two years of the pandemic, **2020–2021**, to assess how the origins, age, gender, ethnicity, poverty status, and insurance coverage of the AVH patient population have shifted since the 2019 needs assessment and how the pandemic has affected those factors.

Overall Patient Population Trends

AVH EHR data shows that the number of single-year unduplicated users fell from 4,221 in 2019, the last year before the COVID-19 pandemic, to 4,064 in 2020, the first year of the pandemic, a drop of 3.5 percent. This modest decline primarily reflects the restrictions on nonessential services during the early months of the pandemic, which discouraged patients from seeking nonemergency care and made some services, such as dental care, temporarily unavailable.

In 2021, the number of unduplicated users rose to 4,514, an increase of 11.7 percent from 2020 and 6.9 percent more than in 2019. This swift recovery provides strong evidence that the 2020 decline was a short-lived side effect of the pandemic and that AVH will resume the growth pattern reported in the 2019 needs assessment.

Comparing two-year unduplicated user totals reveals that AVH had 5,472 unduplicated patients in the 2018–2019 period, rising to 5,708 unduplicated users during the 2020–2021 period, a 4.3 percent gain.

Despite the increase in patient volume in the 2020–2021 period, there were other shifts in patient mix, some of them also probable consequences of the pandemic, which are discussed in the sections below.

IMPORTANT NOTE REGARDING PATIENT DEMOGRAPHIC DATA

Although AVH served a total of 5,472 unduplicated patients in 2018–2019 and 5,708 unduplicated patients in 2020–2021, the electronic health record system contains complete data in all necessary demographic fields for only 5,460 users in the 2018–2019 study period and 5,697 users in 2020–2021. To ensure comparability of the demographic data, the two-year patient data presented in the following sections include only those unduplicated patients for whom complete data was available.

Age

The age ranges of AVH patients, which had been relatively consistent through 2019, underwent a number of changes in 2020 and 2021.

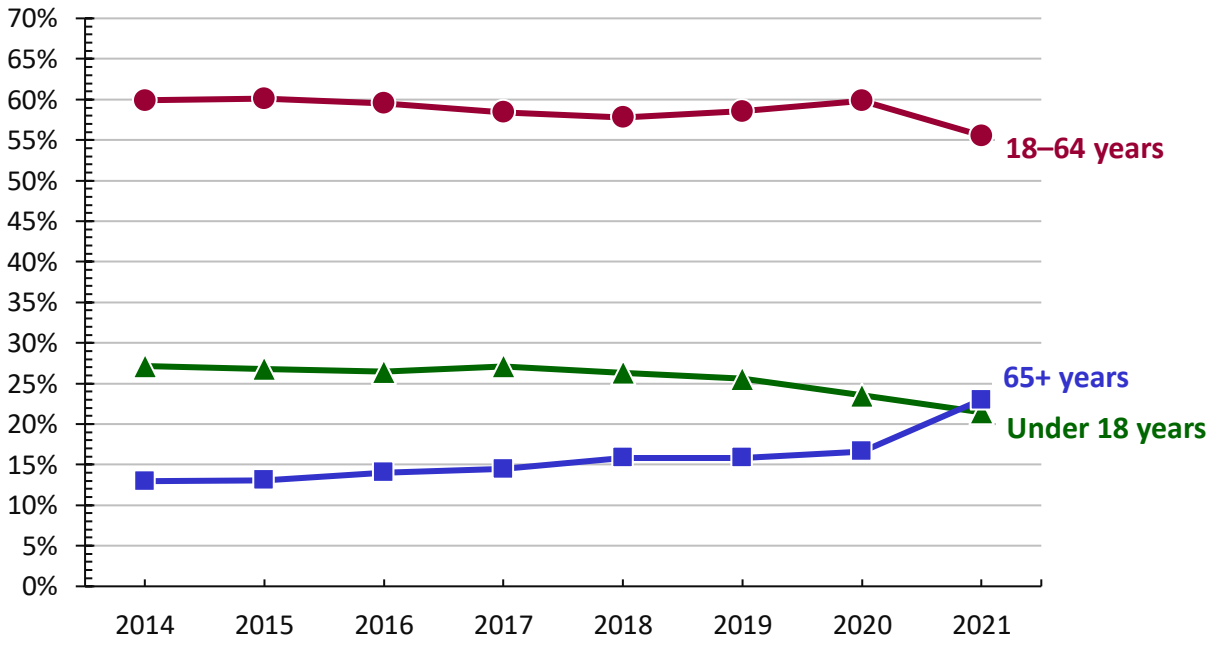
Considering single-year user totals, the percentage of nonelderly adult patients (aged 18–64) fell from 58.6 percent in 2019 to 55.6 percent in 2021, while the percentage of patients under 18 years of age dropped from 25.6 percent in 2019 to only 21.4 percent in 2021.

On a single-year basis, the percentage of patients over 65 increased from 15.8 percent in 2019 to 23.0 percent in 2021.

Table 25: AVH Patient Age Groups as Percentage of All Unduplicated Patients, 2014–2021

Age Group	2014	2015	2016	2017	2018	2019	2020	2021
Under 18 years	27.1%	26.8%	26.4%	27.1%	26.3%	25.6%	23.5%	21.4%
18 to 64 years	59.9%	60.1%	59.5%	58.4%	57.8%	58.6%	59.9%	55.6%
65 years and older	13.0%	13.1%	14.0%	14.4%	15.8%	15.8%	16.6%	23.0%

Figure 7: Trends in AVH Patient Age Groups as Percentage of All Unduplicated Patients, 2014–2021



The same trends are apparent, albeit less pronounced, when comparing the two-year periods 2018–2019 and 2020–2021: The percentage of AVH patients under 18 years of age fell from 25.0 percent for the two pre-pandemic years to 21.4 for the first two years of the pandemic.

According to 2020 U.S. Census estimates, both figures were still greater than the percentage of residents under age 18 in either the service area or Sonoma County as a whole.

This trend likely reflects changes in service utilization due to the pandemic, such as parents delaying or forgoing nonemergency care for their children out of fears of COVID-19.

Comparing two-year study periods, the percentage of non-elderly adult patients (aged 18–64) fell from 59.9 percent in 2018–2019 to 58.5 percent in 2020–2021. Both figures are lower than the 60.1 percent of the 2020 service area population and 60.7 percent of the 2020 Sonoma County population aged 18–64.

The most dramatic shift in the two-year data was in the percentage of patients over age 65, which increased substantially, from 15.1 percent of all unduplicated patients in the 2018–2019 period to 20.0 percent in 2020–2021. This proportion is now closer to Census estimates of the elderly population of the service area (21.0 percent) or Sonoma County (19.6 percent).

Table 26: Age Groups, Totals, 2018–2019 and 2020–2021

Age Group	Service Area, 2020 Est. Pop.	Sonoma County, 2020 Est. Pop.	AVH Patients, 2018–2019	AVH Patients, 2020–2021
Under 18 years	2,699	97,601	1,366	1,219
18 to 64 years	8,547	301,739	3,271	3,336
65 years and older	2,987	97,461	823	1,142
TOTALS	**14,233**	**499,772**	**5,460**	**5,697**

Table 27: Age Groups, Percentages, 2018–2019 and 2020–2021

Age Group	Service Area, 2020 Est. Pop.	Sonoma County, 2020 Est. Pop.	AVH Patients, 2018–2019	AVH Patients, 2020–2021
Under 18 years	19.0%	19.6%	25.0%	21.4%
18 to 64 years	60.1%	60.7%	59.9%	58.5%
65 years and older	21.0%	19.6%	15.1%	20.0%

Gender

AVH has consistently had a greater proportion of female than male patients, although the figures have generally been fairly close. The percentage of female patients rose from 51.7 percent in 2018–2019 to 52.5 percent in 2020–2021 while the percentage of male patients dropped commensurately, from 48.3 percent in 2081–2019 to 47.5 percent in 2020–2021.

Table 28: AVH Patients by Gender, 2018–2019 and 2020–2021

Gender	2018–2019 Users	2018–2019 Percentage	2020–2021 Users	2020–2021 Percentage
Male	2,365	48.3%	2,708	47.5%
Female	2,825	51.7%	2,989	52.5%

Special Populations

INFANTS

Infants under 2 years of age comprised 3.6 percent of unduplicated 2018–2019 AVH patients and 2.9 percent of unduplicated 2020–2021 patients. Both figures are higher than the percentage of infants among the 2020 service area population (2.6 percent) and the 2020 population of Sonoma County (2.7 percent).

SCHOOL-AGE CHILDREN

During the pandemic, the total number of school-age children (aged 5 to 17) served by AVH dropped from 196 (18.8 percent) in 2018–2019 to 167 (16.5 percent) in 2020–2021. However, 2020 U.S. Census estimates indicate that school-age children still comprised a greater percentage of AVH patients than the percentage of school-age children in either the service area (14.1 percent) or Sonoma County (14.7 percent).

WOMEN OF CHILDBEARING YEARS

Women and girls aged 15 to 44 made up an estimated 12.5 percent of Sonoma County's 2020 population and 11.3 percent of the 2020 population of the AVH service area, but 13.6 percent of AVH's 2019–2020 patients. Although this represented a slight decline from 13.7 percent of patients in the 2018–2019 period, the total number of unduplicated patients in this group actually increased from 2018–2019 to 2020–2021.

Table 29: Special Populations, Totals, 2018–2019 and 2020–2021

Population Group	Service Area, 2020 Est. Pop.	Sonoma County, 2020 Est. Pop.	AVH Patients, 2018–2019	AVH Patients, 2020–2021
Infants (birth to 2 years)	375	13,593	196	167
School-age (5 to 17 years)	2,009	73,119	1,026	940
Female, 15 to 44 years	1,610	62,228	750	775

Table 30: Special Populations, Percentages, 2018–2019 and 2020–2021

Population Group	Service Area, 2020 Est. Pop.	Sonoma County, 2020 Est. Pop.	AVH Patients, 2018–2019	AVH Patients, 2020–2021
Infants (birth to 2 years)	2.6%	2.7%	3.6%	2.9%
School-age (5 to 17 years)	14.1%	14.7%	18.8%	16.5%
Female, 15 to 44 years	11.3%	12.5%	13.7%	13.6%

OTHER SPECIAL POPULATIONS

The pandemic did not significantly alter the number of patients AVH serves from other special populations, such as migrant and seasonal farmworkers, veterans, or persons experiencing homelessness.

Table 31: AVH Other Special Population Patients: Agricultural Workers, Veterans, and Homeless, 2018–2019 and 2020–2021

Population	2018	2019	2018–2019*	2020	2021	2020–2021*
Migrant and seasonal agricultural workers	240	298	322	325	343	399
Veterans	98	118	124	129	128	178
Persons experiencing homelessness	92	98	112	98	71	102

* Total two-year unduplicated patients

Migrant and Seasonal Agricultural Workers

There has been a steady year-over-year increase in the number of agricultural workers and their dependents served by AVH, rising from 240 patients in 2018 to 343 patients in 2021 and 399 unduplicated patients in the two-year period 2020–2021.

The increase in the number of migrant and seasonal agricultural workers has been across all age ranges, from under 18 to over 65 years of age. However, the percentage of female patients has risen faster than the percentage of men, increasing from 47.8 percent in 2018–2019 to 49.4 percent in 2020–2021.

The successful community-wide COVID-19 vaccination program, coordinated with agricultural employers in the area, is likely to bring more patients from this population to AVH.

Table 32: AVH Migrant and Seasonal Agricultural Worker Patients, 2018–2019 and 2020–2021

Age Group	2018–2019, Total Users	2018–2019, Percentage	2020–2021, Total Users	2020–2021, Percentage
Under 18 years	120	37.3%	148	37.1%
18 to 64 years	187	58.1%	230	57.6%
65 years and older	15	4.7%	21	5.3%
Male	168	52.2%	202	50.6%
Female	154	47.8%	197	49.4%
TOTALS	**332**	**100.0%**	**399**	**100.0%**

Veterans

The number of AVH patients who are veterans rose from 124 in 2018–2019 to 178 patients in 2020–2021, a 43.5 percent increase.

The percentage of female veterans among those patients increased from 13.7 percent to 17.4 percent during that period, while the proportion of veteran patients who are over age 65 rose from 53.2 percent to 57.9 percent.

Patients Experiencing Homelessness

AVH's patient statistics do not show an increase in persons experiencing homelessness during the first two years of the COVID-19 pandemic; in fact, the total decreased from 98 in 2018 to 72 in 2021.

However, as previous needs assessments have explained, it is difficult to measure homelessness in a rural population with few homeless shelter facilities. Unhoused people who are temporarily doubled up with friends or relatives do not necessarily report or even identify themselves as being "homeless" when staying in home one else's home. Also, it is possible that the pandemic may have encouraged family and friends to shelter people who had lost their housing, in the desire to keep them safe from COVID-19.

Notably, the most recent data available (from 2018) reports that of the 57 students in the Cloverdale Unified School District experiencing homelessness, 55 were "doubled up with family and friends."[86]

Comparing the pre-pandemic years 2018–2019 with the first two pandemic years, 2020–2021, the percent of female patients experiencing homelessness rose from 42.9 percent to 44.0 percent, and the percentage of patients over age 65 experiencing homelessness increased from

[86] California Dept. of Education, Coordinated School Health and Safety Office, Oct. 2019, as cited on kidsdata.org, a program of Population Reference Bureau.

2.7 percent to 7.8 percent. However, the total numbers of patients identified as experiencing homelessness were small enough that these variations may be of limited significance.

Table 33: AVH Patients Experiencing Homelessness, 2018–2019 and 2020–2021

	Total Users, 2018–2019	Percentage, 2018–2019	Total Users, 2020–2021	Percentage, 2020–2021
Under 18 years	12	10.7%	<10	3.9%
18 to 64 years	97	86.6%	90	88.2%
65 years and older	<10	2.7%	<10	7.8%
Male	64	57.1%	97	55.9%
Female	48	42.9%	45	44.1%
Total	**112**	**100.0%**	**102**	**100.0%**

Note: Data has been suppressed where the number of patients is fewer than 10, in the interests of privacy

Race and Ethnicity

Minority residents are often more impacted by financial downturns than are white residents of the same area, and the impact of the COVID-19 pandemic resulted in an increase in the number of minority patients (defined as patients of any known ethnicity other than white, non-Hispanic) served by AVH, from 2,636 in 2018–2019 to 2,660 in 2020–2021.

However, the growth in AVH's total patient population meant that the percentage of minority patients declined slightly, from 51.3 percent in 2018–2019 to 50.8 percent in 2020–2021.

Table 34: Race and Ethnicity, Totals, 2018–2019 and 2020–2021

Race/Ethnicity Group	Service Area, 2020 Est. Pop.	Sonoma County, 2020 Est. Pop.	AVH Patients, 2018–2019	AVH Patients, 2020–2021
Hispanic	3,727	134,024	2,287	2,340
White, non-Hispanic	9,388	310,607	2,503	2,574
Black, non-Hispanic	115	7,380	39	34
Asian, non-Hispanic	218	20,733	80	57
American Indian, non-Hispanic	284	2,214	36	48
Native Hawaiian and other Pacific Islanders, non-Hispanic	20	1,481	21	15
Other or 2 or more, non-Hispanic	481	20,362	173	186
Unknown or refused to report			321	463
Total population	14,233	496,801	5,460	5,697
Any minority	4,845	186,194	2,636	2,660

Table 35: Race and Ethnicity, Percentages, 2018–2019 and 2020–2021

Race/Ethnicity Group	Service Area, 2020 Est. Pop.	Sonoma County, 2020 Est. Pop.	AVH Patients, 2018–2019	AVH Patients, 2020–2021
Hispanic	26.2%	27.0%	44.5%	44.7%
White, non-Hispanic	66.0%	62.5%	48.7%	49.2%
Black, non-Hispanic	0.8%	1.5%	0.8%	0.6%
Asian, non-Hispanic	1.5%	4.2%	1.6%	1.1%
American Indian, non-Hispanic	2.0%	0.4%	0.7%	0.9%
Native Hawaiian and Other Pacific Islanders, non-Hispanic	0.1%	0.3%	0.4%	0.3%
Other or 2 or more, non-Hispanic	3.4%	4.1%	3.4%	3.2%
Any minority	34.0%	37.5%	51.3%	50.8%

As indicated in the table above, despite the slight decline, the percentage of AVH patients who belong to any nonwhite, non-Hispanic minority group continues to be greater than the minority population of either the service area (34.0 percent) or Sonoma County (37.5 percent).

AVH saw increases in both the number and percentage of Hispanic patients served, from 2,287 (44.5 percent of all patients of known ethnicity) in 2018–2019 to 2,340 (44.7 percent of all patients of known ethnicity) in 2020–2021.

However, the number of Asian non-Hispanic patients dropped from 80 (1.6 percent) in 2018–2019 to 57 patients (1.1 percent) in 2020–2021, while the number and percentage of Black non-Hispanic patients dropped from 39 (0.8 percent) to 34 (0.6 percent).

Language

According to data from AVH's health records, approximately 21.3 percent of 2020–2021 patients "were best served in a language other than English." This was roughly equal to the 21.6 percent of AVH patients who needed an interpreter in 2018–2019.

However, the percentage of patients needing an interpreter has dropped steadily from 25.6 percent in 2013–2014. This may reflect the greater assimilation of service area residents, as well as increasing numbers of young Hispanic patients whose English capacity exceeds that of their parents and grandparents.

Poverty Levels

In the 2020–2021 period, 39.1 percent of AVH patients whose incomes were known had incomes below 100 percent of the federal poverty level (FPL), and 89.0 percent had incomes below 200 percent of the poverty level.[87]

This represented a significant decrease from the 2018–2019 period, during which 46.0 percent of AVH patients had incomes below 100 percent of FPL and 88.4 percent had incomes below 200 percent of FPL. However, it is still far higher than the percentage of Sonoma County residents or service area residents who were low-income in 2020. According to U.S. Census Bureau American Community Survey 5-year estimates, only 8.8 percent of Sonoma County residents had incomes below 100 percent of poverty in 2020, while an estimated 21.3 percent of Sonoma County residents had incomes below 200 percent of FPL.

Similarly, Census estimates indicate that only 8.8 percent of residents of the ZIP Code Tabulation Areas that make up the AVH service area have incomes below 100 percent of the federal poverty level and only 23.5 percent have incomes under 200 percent of FPL.

Over the past eight years, the percentage of AVH patients with incomes below 200 percent of the federal poverty level has remained high, while the percentages of patients below 100 percent of FPL and between 100 and 200 percent of FPL have fluctuated with economic trends.

Table 36: Patient Poverty Group by FPL, Percentage of Patients of Known Incomes, 2014–2021

Poverty Group	2014	2015	2016	2017	2018	2019	2020	2021
Under 100% of FPL	42.9%	41.6%	36.5%	40.5%	42.1%	39.6%	34.5%	36.5%
100–199% of FPL	40.5%	44.9%	47.8%	46.6%	46.0%	52.1%	54.5%	49.8%
Over 200% of FPL	16.6%	13.5%	15.7%	12.9%	11.9%	8.3%	11.1%	13.8%

[87] The federal poverty level, more properly known as the "poverty guidelines," is an income level set each January by the U.S. Department of Health and Human Services (HHS) and used to determine financial eligibility for many programs intended to support low-income households. For example, community health centers are required to offer sliding scale discounts to patients with incomes up to 200 percent of the poverty guidelines. The HHS poverty guidelines differ somewhat from the poverty thresholds the U.S. Census Bureau uses to estimate poverty, but for population-level calculations such as needs assessments, the Census and HHS figures are generally comparable. For more information, see *https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/frequently-asked-questions-related-poverty-guidelines-poverty*.

Figure 8: Trends in AVH Patient Poverty Group by FPL, Percentage of Patients of Known Incomes, 2014–2021

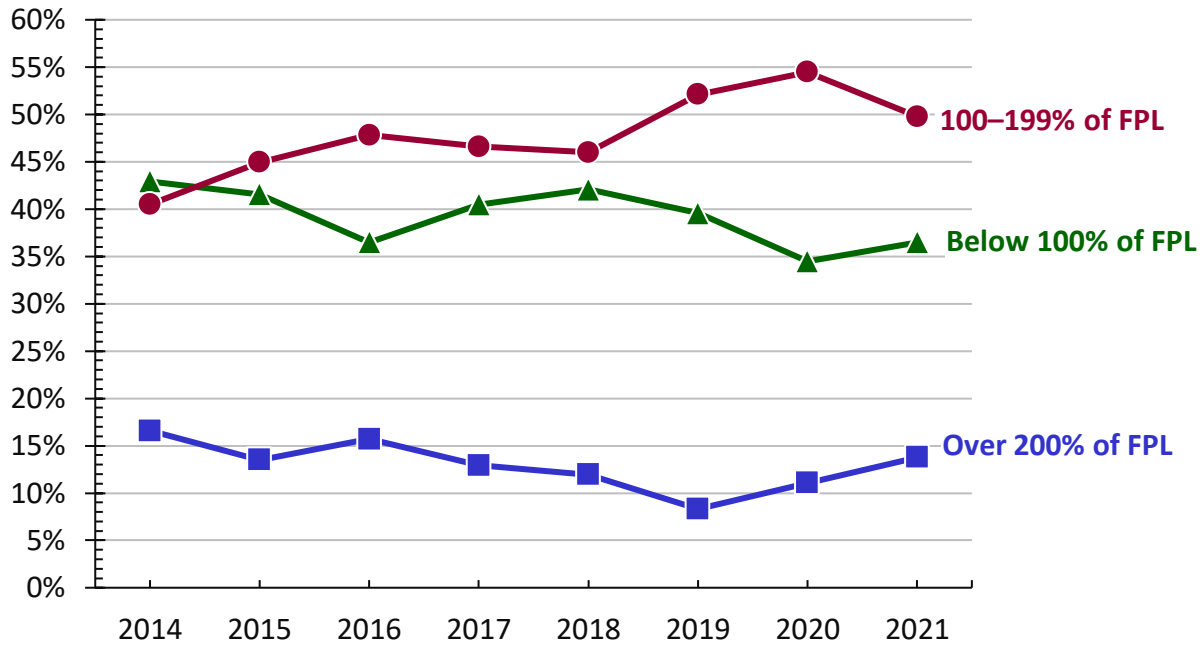


Table 37: Income by FPL, Totals, 2018–2019 and 2020–2021

Income	Service Area, 2020 Est. Pop.	Sonoma County, 2020 Est. Pop.	AVH Patients, 2018–2019	AVH Patients, 2020–2021
Below 100% FPL	1,377	43,086	1,743	1,520
100–199% FPL	1,942	61,091	1,800	1,944
200% FPL and above	10,828	385,619	249	427
Unknown or not reported	0	0	1,668	1,806
Population for whom poverty was determined	14,147	489,796	3,792	3,891
Under 200% of FPL	3,319	104,177	3,543	3,464

Table 38: Income by FPL, Percentages, 2018–2019 and 2020–2021

Income	Service Area, 2020 Est. Pop.	Sonoma County, 2020 Est. Pop.	AVH Patients, 2018–2019*	AVH Patients, 2020–2021*
Below 100% FPL	9.7%	8.8%	46.0%	39.1%
100–199% FPL	13.7%	12.9%	47.5%	50.0%
200% FPL and above	76.5%	78.7%	6.6%	11.0%
Unknown or not reported	0.0%	0.0%	30.5%	31.7%
Under 200% of FPL	23.5%	21.3%	93.4%	89.0%

* Percentage of patients of known incomes.

Across all demographic groups, a higher proportion of AVH patients were below 100 percent of the federal poverty level than residents of Sonoma County in both two-year study periods, 2018–2019 and 2020–2021.

Table 39: Poverty Status (Under 100% FPL) and Major Demographic Group, Percentages, 2018–2019 and 2020–2021

Demographic Group	Service Area, 2020 Est. Pop.	Sonoma County, 2020 Est. Pop.	AVH Patients, 2018–2019*	AVH Patients, 2020–2021*
Total population	**	8.8%	31.9%	26.7%
Under 18 years, all genders	**	10.3%	34.6%	29.5%
18 to 64 years, all genders	**	8.8%	31.6%	28.3%
65 years and older, all genders	**	7.3%	28.8%	19.1%
Male, all ages	**	7.7%	29.9%	26.0%
Female, all ages		9.9%	33.8%	27.3%
Hispanic, all ages and genders	**	11.8%	36.5%	34.2%
White, non-Hispanic, all ages and genders	**	7.3%	15.0%	13.1%
Total population	**	8.8%	31.9%	26.7%

* Percentage of patients of known incomes. ** Census data for the service area was not available due to population size.

Of this data, only the 2020–2021 patient figures reflect the economic impact of the COVID-19 pandemic.

As discussed in the Service Area chapter, factors related to the pandemic have triggered substantial inflation in California and throughout the United States. According to the U.S. Department of Labor Bureau of Labor Statistics, the Consumer Price Index for All Urban Consumers (CPI-U) — which the Department of Health and Human Services (HHS) uses to annually adjust the federal poverty guidelines — increased 7.0 percent between December 2020 and December 2021.[88] As a result, HHS increased the 2022 federal poverty level for the 48 contiguous states to $13,590 ($27,750 for a family of four), an increase of 5.5 percent from 2021 and the largest single-year increase in FPL in over a decade.[89] (By comparison, the

[88] U.S. Bureau of Labor Statistics, data from "CPI for All Urban Consumers (CPI-U)," retrieved via *https://data.bls.gov*.

[89] See "Prior HHS Poverty Guidelines and Federal Register References," HHS Office of the Assistant Secretary for Planning and Evaluation, *https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/prior-hhs-poverty-guidelines-federal-register-references*.

increase from 2020 to 2021 was less than 1 percent, while the increase from 2019 to 2020 was 2.2 percent.)

Ongoing inflationary trends, and the resultant increases in FPL, will likely have a significant impact on the poverty levels of the AVH patient population in 2022 and beyond, although as of this writing, it is too soon to quantify the extent of that impact.

However, these changes mean that the percentages of service area residents and Sonoma County residents with incomes below FPL and below 200 percent of FPL **have almost certainly increased in 2022** in ways currently available U.S. Census data does not reflect.

Insurance Coverage

Compared to the pre-pandemic 2018–2019 period, the first two years of the pandemic showed substantial shifts in the insurance status of AVH patients, some of which were unexpected.

Between 2018–2019 and 2020–2021, the number of Medicare patients served rose unexpectedly from 727 (13.3 percent) to 902 (14.7 percent), possibly due to more seniors choosing to receive their care closer to home.

Table 40: Insurance Status, Totals, 2018–2019 and 2020–2021

Insurance Group	Service Area, 2020 Est. Pop.	Sonoma County, 2020 Est. Pop.	AVH Patients, 2018–2019	AVH Patients, 2020–2021
Population of known health insurance status	14,175	492,417	5,460	5,697
Uninsured	854	29,765	744	999
Private health insurance	8,327	313,896	1,526	1,532
Medicare	1,786	59,448	727	902
Medicaid (Medi-Cal)	3,080	87,075	2,463	2,264
Other public insurance*	128	2,233	0	0

Table 41: Insurance Status, Percentages, 2018–2019 and 2020–2021

Insurance Group	Service Area, 2020 Est. Pop.	Sonoma County, 2020 Est. Pop.	AVH Patients, 2018–2019	AVH Patients, 2020–2021
Uninsured	6.0%	6.0%	13.6%	17.5%
Private health insurance	58.7%	63.7%	27.9%	26.9%
Medicare	12.6%	12.1%	13.3%	15.8%
Medicaid (Medi-Cal)	21.7%	17.7%	45.1%	39.7%
Other public insurance*	0.9%	0.5%	0.0%	0.0%

* Includes military (TRICARE)/Veterans Administration coverage and other state or county programs.

Table 42: AVH Patient Insurance Coverage, Totals, 2014–2021

Insurance Group	2014	2015	2016	2017	2018	2019	2020	2021
Uninsured	600	585	647	660	554	816	521	602
Medicaid (Medi-Cal)	1,494	1,834	1,913	1,906	1,884	1,713	1,806	1,817
Medicare	530	522	619	675	654	658	569	804
Private insurance	1,130	922	969	1,023	1,030	1,034	1,168	1,291
All patients	3,757	3,863	4,148	4,264	4,122	4,221	4,064	4,514

Table 43: AVH Patient Insurance Coverage, Percentages, 2014–2021

Insurance Group	2014	2015	2016	2017	2018	2019	2020	2021
Uninsured	16.1%	15.1%	15.6%	15.5%	13.4%	19.3%	12.8%	13.3%
Medicaid (Medi-Cal)	39.8%	47.5%	46.1%	44.7%	45.7%	40.6%	44.4%	40.3%
Medicare	14.1%	13.5%	14.9%	15.8%	15.9%	15.6%	14.0%	17.8%
Private insurance	30.1%	23.9%	23.4%	24.0%	25.0%	24.5%	28.7%	28.6%

Figure 9: Trends in AVH Patient Insurance Coverage, Totals, 2014–2021

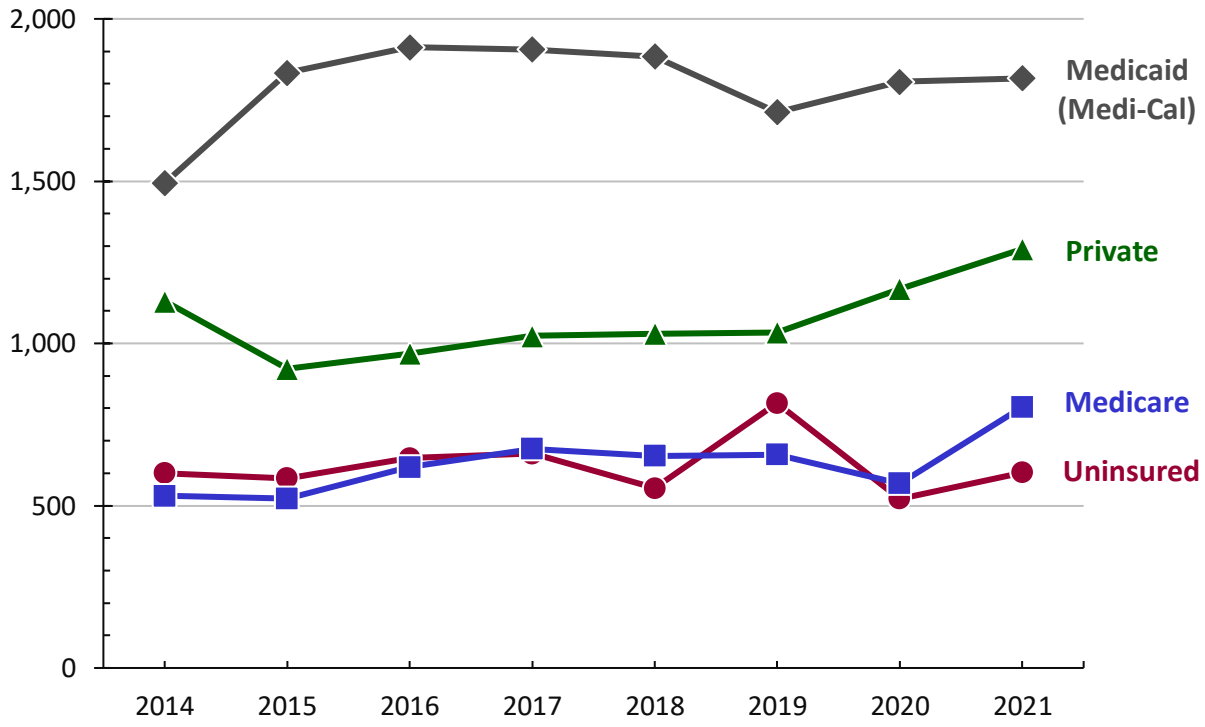
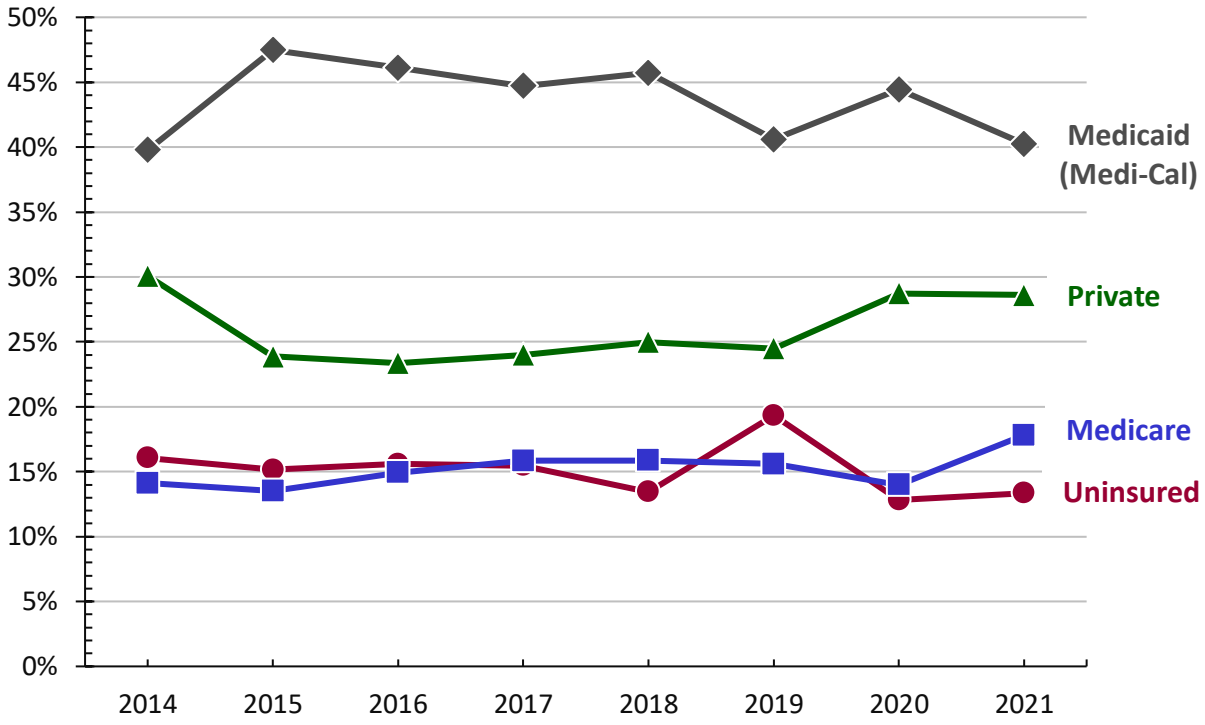


Figure 10: Trends in AVH Patient Insurance Coverage, Percentages, 2014–2021



Throughout the pandemic, AVH has continue to serve a greater percentage of privately insured patients than has historically been the case: 27.9 percent of unduplicated 2018–2019 patients and 26.9 percent of 2020–2021 patients were privately insured.

Despite the percentage decline between the 2018–2019 and 2020–2021 periods, the total number of privately insured patients actually increased slightly from 2018–2019 to 2020–2021. Single-year data indicates that the number of unduplicated patients with private insurance coverage grew to 1,291 in 2021, which was the greatest number of privately insured patients AVH has served in any calendar year and represents a 10.5 percent increase from 2020.

The fact that a growing number of patients with private insurance are seeking care from AVH may be a sign of increased **underinsurance**, perhaps due to high inflation leaving insured households less able to afford the out-of-pocket costs of healthcare. (See the "Underinsurance" section later in this chapter for more information on that subject.)

AVH had previously anticipated that pandemic-related layoffs would lead to an increase in the percentage of patients covered by Medi-Cal, California's Medicaid program. Instead, the percentage of AVH patients covered by Medi-Cal fell from 45.1 percent in the 2018–2019 period to 39.7 percent in the 2020–2021 period.

This is still well above Census estimates of the percentage of the service area population covered by Medi-Cal (21.7 percent) or the percentage of Sonoma County residents who are Medi-Cal beneficiaries (17.7 percent). However, the total number of unduplicated AVH patients covered by Medi-Cal fell by 199 between 2018–2019 and 2020–2021, a decrease of 8.8 percent. Single-year data shows that the number of Medi-Cal patients decreased by almost 10 percent between 2018 and 2019, increased in 2020, and stayed about the same for 2021, albeit still below 2016–2018 levels.

One possible explanation for these trends is that improvements in the economy prior to the pandemic enabled some patients to obtain new employment, additional hours, or greater pay that made them income-ineligible for Medi-Cal without providing employer-funded health coverage to make up for it. Single-year data shows that the decline in Medi-Cal patients from 2018 to 2019 coincided with a sharp rise in the number of uninsured patients, which climbed from 554 in 2018 to 816 in 2021, an increase of 47.3 percent.

In 2020 and 2021, the number of Medi-Cal patients increased (albeit not to the levels seen in 2018 and earlier) and the number of uninsured patients fell, declining to 521 in 2020 and 602 in 2021. It is possible that some patients who lost Medi-Cal coverage prior to the pandemic were able to successfully reapply, perhaps due to pandemic-related layoffs, or were able to obtain private insurance, but that would not fully explain the observed trends.

Two-year data indicates that the number of AVH patients who were uninsured grew from 744 (13.6 percent) in 2018–2019 to 999 (17.5 percent) in 2020–2021, an increase of 34.3 percent. (The substantial differences between the single-year and two-year unduplicated patient data suggest that uninsured patients who rely on AVH for care do not necessarily have a UDS reportable visit every year, which is further evidence of the value of the two-year evaluation in identifying the true size of the health center's patient population.)

This represents a sharp increase over the previous years, and brings the percent of uninsured patients served by AVH to nearly three times the Census-estimated 6.0 percent uninsured population of the service area and Sonoma County.

Despite the increase in the number of Medicare patients served, the number of patients over age 65 who were uninsured rose dramatically, from 62 patients (7.9 percent) in 2018–2019 to 210 (18.4 percent) in 2020–2021. The percent of Hispanic/Latino patients who were uninsured rose from an already high 19.8 percent in 2018–2019 to 20.6 percent in 2020–2021, although the percentage of uninsured white, non-Hispanic patients actually fell from 9.4 percent to 7.9 percent.

Table 44: Uninsured Individuals by Major Demographic Group, 2018–2019 and 2020–2021

Demographic Group	Service Area, 2020 Est. Pop.	Sonoma County, 2020 Est. Pop.	AVH Patients, 2018–2019	AVH Patients, 2020–2021
Under 18 years of age	1.9%	3.6%	6.0%	5.5%
18 to 64 years	8.3%	8.6%	18.3%	21.6%
65 years and older	3.5%	0.8%	7.5%	18.4%
Male	7.3%	6.8%	14.2%	18.2%
Female	4.8%	5.3%	13.1%	17.0%
Hispanic	13.9%	11.7%	19.8%	20.6%
White, non-Hispanic	3.3%	3.3%	9.4%	7.9%
Total population	**6.0%**	**6.0%**	**13.6%**	**17.5%**

Insurance alone is no guarantee that patients will be able to access healthcare when they need it. They need a regular source of care, such as a primary care provider. However, lack of health insurance can be a major barrier to having a regular source of care.

In Sonoma Count, 45 percent of Sonoma County residents without health insurance are **without a regular source of care.**[90]

DENTAL INSURANCE

According to the California Health Interview Survey,[91] a greater proportion of Sonoma County adults are without dental insurance than are California adults statewide: 37.4 percent versus 32.6 percent.

A similar gap exists among residents with incomes below 200 percent of the federal poverty level: 47.3 percent of Sonoma County residents below 200 percent of FPL have no dental insurance, compared to 44.8 percent of adults below 200 percent of FPL statewide. (These figures would likely be even higher except that more low-income adults are covered by Medi-Cal, which includes dental insurance.)

Statewide, 81.2 percent of adults of all incomes who lack health insurance also lack dental insurance. In Sonoma County, 91.5 percent of adults of all incomes who lack health insurance are also without dental insurance.[92]

[90] California Health Interview Survey (CHIS), UCLA Center for Healthcare Policy Research, 2018–2020 pooled data. Retrieved from AskCHIS, *https://ask.chis.ucla.edu/ask/*.

[91] Ibid.

[92] Ibid.

UNDERINSURANCE

U.S. Census American Community Survey estimates of the number of persons with health insurance coverage do not address the degree to which even people with health insurance may be **underinsured.**

For individuals and families who have health insurance, cost may still present a significant barrier to accessing needed care for a variety of reasons:

- Available providers may not accept that insurance, or may not be covered by it ("out of network").
- The health plan may not cover the specific services or medications needed.
- The plan may not cover needed care or medications until the insured person has met a particular deductible amount.
- Provider visits and prescriptions may be subject to copayments.
- Even after any deductible and copayment, the insurance plan may only cover a percentage of the total cost of services — typically ranging from 60 to 90 percent, and often less if the provider is out-of-network. The rest is the patient's responsibility (sometimes described as "coinsurance").

The Commonwealth Fund commissions a biennial health insurance survey that explores the issue of uninsurance, uninsurance, and medical debt. The most recent survey, published in September 2022,[93] found that 43 percent of working-age adults (aged 19–64) were inadequately insured in 2022, including 9 percent who were uninsured, 11 percent who had a gap in coverage for part of the year, and 23 percent who were underinsured.

Respondents were considered underinsured if either of the following statements applied:

[93] Sara R. Collins et al, "The State of U.S. Health Insurance in 2022: Findings from the Commonwealth Fund Biennial Health Insurance Survey," Commonwealth Fund Issue Briefs, Sep. 29, 2022, *https://www.commonwealthfund.org/publications/issue-briefs/2022/sep/state-us-health-insurance-2022-biennial-survey*. The survey included interviews with a nationally representative sample of 8,022 adults aged 196 and older, but its analysis focused on the 6,301 responses from adults under age 65 (and thus not yet eligible for Medicare).

- Out-of-pocket healthcare costs over the prior 12 months, excluding premiums, were equal to 10 percent or more of household income (or 5 percent or more of household income for a household below 200 percent of the federal poverty level).

- The deductible constituted 5 percent or more of household income.

Of the respondents of working age (19–64):[94]

- Twenty-nine percent of those with employer coverage and 44 percent of those with coverage purchased through the individual marketplaces were underinsured.

- Almost half (49 percent) said they would be unable to pay an unexpected $1,000 medical bill within 30 days, including 68 percent of adults with low incomes, 69 percent of Black adults, and 63 percent of Latinx/Hispanic adults.

- Sixty-one percent of those who were underinsured and 71 percent of those who lacked continuous coverage said they had avoided getting needed care because of cost.

- Forty-six percent said they had skipped or delayed care because of cost.

- About one-fourth of those with chronic health problems (e.g., diabetes) said they had skipped medication doses or not filled a prescription for their condition due to the high out-of-pocket cost of prescription drugs.

The magnitude of the underinsurance problem can also be illustrated by average health plan deductibles and out-of-pocket cost limits.

In 2022, the annual out-of-pocket cost maxima for subsidized health plans purchased through Covered California, California's healthcare exchange, ranged from $2,850 to $8,700 for an individual and $5,750 to $17,400 for a family (except for "Enhanced Silver" plans, whose out-of-pocket limits were $800 for an individual and $1,600 for a family).

Depending on plan tier, medical deductibles for these plans ranged from $75 to $6,300 for an individual and $150 to $12,600 for a family in 2022. The cheaper "Bronze" and "Silver" plans also include pharmacy deductibles, and all plans impose a per-prescription copayment (ranging from $5 to $250) after any deductible is met.[95]

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[94] Ibid.

[95] Covered California, "2022 Patient-Centered Benefit Designs and Medical Costs Shares," *https://www.coveredca.com/pdfs/2022-Health-Benefits-table.pdf*.

Employer-provided coverage may also have high deductibles, although on average, they are lower than for marketplace "Silver" and "Bronze" plans. The Office of Health Policy of the HHS Assistant Secretary for Planning and Evaluation reports that in 2021, the nationwide average individual deductible for employer-provided coverage was $1,434, compared to $2,825 (after subsidies) for subsidized plans purchased through HealthCare.gov.[96]

A March 2022 Health System Tracker brief warned that health plan cost-sharing (including deductibles, copayments, and coinsurance) for private health plans, including subsidized marketplace plans, is unaffordable for many households:

> [L]arge shares of non-elderly households do not have enough liquid assets to meet typical plan cost-sharing amounts. For example, 45% of single-person non-elderly households could not pay over $2,000 from current liquid assets, and 63% could not pay over $6,000. Lower-income households were much less likely to have the liquid assets to meet typical cost sharing.[97]

It should also be stressed that cost-sharing amounts are on top of health plan premiums, which can be substantial even with federal cost-sharing reduction subsidies (CSRs). Under the American Rescue Plan Act (ARPA), the cost of premiums for subsidized marketplace plans can be up to 8.5 percent of household income after CSRs — and even more for "Gold" or "Platinum" plans, which have lower average out-of-pocket costs.[98]

In the 2022 Commonwealth Fund Health Insurance Survey, 63 percent of adults 19–64 who said they had tried to buy a plan in the individual market or marketplaces in the past three years but never actually did so said the main reason was that the plans were too expensive.[99]

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[96] D. Keith Branham et al,. "Health Insurance Deductibles Among HealthCare.Gov Enrollees, 2017–2021," U.S. Dept. of Health and Human Services, Assistant Secretary for Planning and Evaluation, Office of Health Policy, Issue Brief HP 2022-02, Jan. 13, 2022, *https://aspe.hhs.gov/sites/default/files/documents/748153d5bd3291edef1fb5c6aa1edc3a/aspe-marketplace-deductibles.pdf*.

[97] Gregory Young et al, "How Many People Have Enough Money to Afford Private Insurance Cost Sharing?" Peterson-KFF Health System Tracker, March 10, 2022, *https://www.healthsystemtracker.org/brief/many-households-do-not-have-enough-money-to-pay-cost-sharing-in-typical-private-health-plans/*.

[98] Covered California, "A New Limit on Health Insurance Costs," *https://www.coveredca.com/arp/financial-help/a-new-limit-on-health-insurance-costs/*, and Gary Claxton et al, "The New Gold Standard: How Changing the Marketplace Coverage Benchmark Could Impact Affordability," Commonwealth Fund Issue Briefs, Sep. 22, 2022, *https://www.commonwealthfund.org/publications/issue-briefs/2022/sep/new-gold-standard-changing-marketplace-coverage-benchmark-affordability*.

[99] Collins et al.

The cost of insurance continues to rise. Covered California reported in July 2022 that the cost of premiums for its enrollees is expected to increase by an average of 6 percent for 2023, more than three times the 1.8 percent average increase reported for the previous year.[100]

MEDICAL DEBT

High out-of-pocket costs can quickly lead to medical debt, particularly for lower-income households.

According to the most recent Kaiser Family Foundation (KFF) Health Care Debt Survey,[101] 41 percent of U.S. adults currently have debt from medical or dental bills. An additional 16 percent report having had healthcare debt in the past five years that has since been paid off.

Fifty-seven percent of all adults with annual incomes under $40,000 report current healthcare debt, as do 56 percent of Black adults and 50 percent of Hispanic adults. Women are significantly more likely than men to have healthcare debt (48 percent versus 34 percent).

The KFF survey emphasizes that **healthcare debt is by no means limited to the uninsured**. Forty-four percent of currently insured adults under age 65 reported having current debt from medical or dental bills, often due to a one-time or short-term expense such as a single hospitalization. Another frequent source of debt is lab fees, diagnostic tests, and emergency care that insurance didn't fully cover. (In California, the cheaper "Bronze" plans available through the state healthcare exchange cover only 40 percent of the cost of an emergency room visit or X-rays, and only after the medical deductible is met.[102])

Twenty-four percent of adults report having healthcare debts that are past due or that they are unable to pay. Twenty-six percent of adults with annual incomes under $40,000 with current healthcare debt and 17 percent of all insured adults aged 18–64 with healthcare debt doubt they will ever be able to pay off the debt.[103]

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[100] Covered California, "Covered California Announces 2023 Rates: Lower Than National Averages Amid Uncertain Future of American Rescue Plan Benefits" [news release], July 19, 2022, *https://www.coveredca.com/newsroom/news-releases/2022/07/19/covered-california-announces-2023-plan-rates-lower-than-national-average-amid-uncertain-future-of-american-rescue-plan-benefits/*.

[101] Lunna Lopes et al, "Health Care Debt in the U.S.: The Broad Consequences of Medical and Dental Bills," Kaiser Family Foundation, June 16, 2022, *https://www.kff.org/report-section/kff-health-care-debt-survey-main-findings/*.

[102] Covered California, "2022 Patient-Centered Benefit Designs and Medical Costs Shares," *https://www.coveredca.com/pdfs/2022-Health-Benefits-table.pdf*.

[103] Lopes et al.

The U.S. Consumer Financial Protection Bureau (CFFB) estimates that as of June 2021, consumer medical debt collections totaled at least $88 billion, about $7.5 billion of that in California.[104] However, CFFB acknowledges that the aggregate total of all medical debt is difficult to calculate because it may take a variety of forms, not all of which are reported to the three nationwide consumer reporting companies. A KFF analysis of U.S. Census Survey of Income and Program Participation (SIPP) data estimates total U.S. medical debt as "at least $195 billion."[105]

Like uninsurance and underinsurance, **healthcare debt can pose a significant barrier to care**. Individuals and families with existing medical debt may skip or delay other needed care; in the 2022 KFF Health Debt Survey, 64 percent of respondents with healthcare debt reported putting off or postponing care in the past 12 months due to cost. Patients with unpaid bills may also be turned away by providers. In the KFF survey, 15 percent of respondents with healthcare debt (including 22 percent of Black respondents with healthcare debt and 14 percent of Hispanic respondents with healthcare debt) said a medical provider had denied care due to outstanding debts related to previous services.[106]

Medical debt can also result in other financial consequences, including wage garnishment, seizure of property, and bankruptcy, as well as difficulty in obtaining housing or vehicle financing.[107]

Because most U.S. seniors are covered by Medicare, adults aged 65 and older are much less likely than are nonelderly adults to report having current healthcare debt.[108] However, adults 65 and older have higher average out-of-pocket healthcare costs than does any other age group.[109]

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[104] Consumer Finance Protection Bureau, *Medical Debt Burden in the United States*, Feb. 2022, *https://files.consumerfinance.gov/f/documents/cfpb_medical-debt-burden-in-the-united-states_report_2022-03.pdf*.

[105] Matthew Rae et al, "The Burden of Medical Debt in the United States," Peterson-KFF Health System Tracker, March 10, 2022, *https://www.healthsystemtracker.org/brief/the-burden-of-medical-debt-in-the-united-states/*.

[106] Lopes et al.

[107] Consumer Finance Protection Bureau, *Medical Debt Burden in the United States*.

[108] Lopes et al.

[109] Juliette Cubanski et al, "How Much Do Medicare Beneficiaries Spend Out of Pocket on Health Care?" Kaiser Family Foundation, Nov. 4, 2019, *https://www.kff.org/medicare/issue-brief/how-much-do-medicare-beneficiaries-spend-out-of-pocket-on-health-care/*.

Medicare typically does not cover common healthcare needs such as hearing, vision, or dental care. Moreover, Medicare does not cover long-term care, while Medicaid only covers certain types of long-term care. Consequently, most Medicare beneficiaries either enroll in Medicare Advantage plans (which cover some or all of these services) or have some other form of supplemental coverage. Without such coverage, the cost of services not covered by Medicare, and the copays for prescription drugs, can quickly become prohibitive.[110]

In 2016, one-quarter of all Medicare beneficiaries — 15 million people — spent at least 23 percent of their incomes on health-related services, while an additional 10 percent spent nearly half their income on out of-pocket healthcare expenses.[111]

[110] Wyatt Koma et al, "A Snapshot of Sources of Coverage Among Medicare Beneficiaries in 2018," Kaiser Family Foundation, March 23, 2021, *https://www.kff.org/medicare/issue-brief/a-snapshot-of-sources-of-coverage-among-medicare-beneficiaries-in-2018/*.

[111] Cubanski et al.

PART THREE: Service Patterns

Introduction

As reported in Alexander Valley Healthcare's 2019 needs assessment, AVH grew rapidly after it became an FQHC, and by 2017, its third full year of federal funding, had hit a ceiling of how many patients it could serve in a given year.

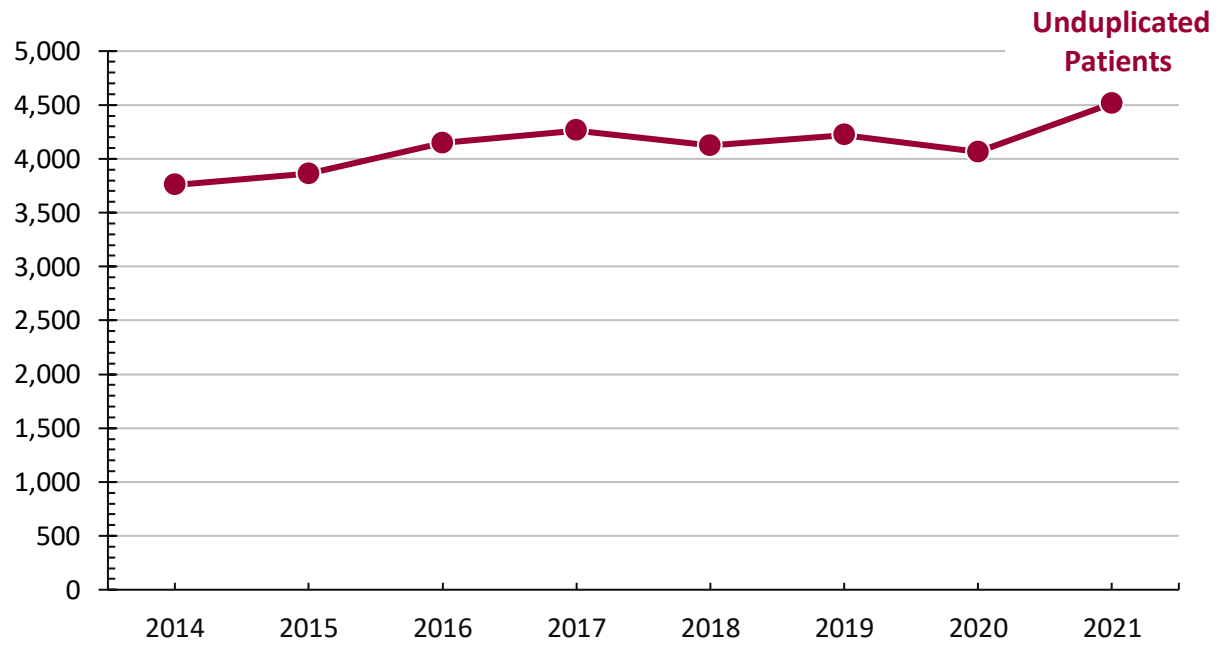
Within this same period, 700 to 1,000 new patients approached AVH for services, stretching available resources. However, while patient demand would have justified hiring additional clinical providers, the limited space available in AVH's leased medical and dental clinic facilities — and the practical limits on how many exam rooms, counseling room, and dental operatories could fit into that space — effectively capped the number of providers AVH could house.

Consequently, the total number of patients served annually has remained in the 4,100 to 4,250 range, despite steps taken to maximize space utilization through changes to the existing buildings, the addition of several modular units, and shifts in hours and operational procedures.

Table 45: Total AVH Patients, 2014–2021

Year	2014	2015	2016	2017	2018	2019	2020	2021
Patients	3,757	3,863	4,148	4,264	4,122	4,221	4,064	4,514

Figure 11: Total AVH Patients, 2014–2021



The only notable variation from this pattern occurred in 2021, when the availability of telehealth visits, inaugurated during the COVID-19 pandemic, allowed AVH to serve a total of 4,514 unduplicated patients. Unfortunately, the crowded space and pandemic-related workload (due to testing, vaccination clinics, etc.) further increased the pressure on staff, resulting in greater turnover among providers and support staff.

Interim Strategy

After hitting this ceiling on provider staffing (and therefore patient volume), AVH began exploring replacements for its two leased clinic facilities. Unfortunately, there were no existing buildings available in Cloverdale of adequate size that could be renovated for this purpose, so AVH began planning a large-scale new construction project.

In the interim, AVH has addressed the inadequate size of its existing facilities in several ways:

- Extended clinic schedules (from 8 a.m. to 7 p.m. five days a week) have increased utilization of the available exam rooms and dental operatories.
- Provider productivity has been increased through the use of new scheduling models, hiring added support staff, and use of electronic health record tools.
- Administrative functions were transferred to modular units of 750 square feet and 950 square feet in order to free up more space for direct client services.
- At the start of the COVID-19 pandemic, AVH leased a 2,400 square foot building to use for COVID-19 testing and care. In 2022, this space was repurposed for administrative functions.
- The launch of telehealth services expanded medical and mental health services beyond what could be provided on-site. However, the continuation of telehealth will depend on whether Medicare, Medi-Cal (California's Medicaid program), and private insurers continue to reimburse for virtual visits.

Planning for a new facility has continued. Property has been purchased, site layouts and building designs have been developed, and approval processes are well underway, as outlined in the Future Growth Opportunities chapter.

Patient and Visit Summary

During the two-year period Jan. 1, 2020 – Dec. 31, 2021, Alexander Valley Healthcare (AVH) served 5,708 unduplicated patients in 40,125 provider visits. This was an **increase** of 4.3 percent in the 5,472 users served in the previous two years (2018–2019).

However, the total number of visits **decreased** from 42,727 in 2018–2019 to 40,125 in 2020–2021, a drop of 2,780 visits that cut deeply into AVH's revenues. This decline was the result of the COVID-19 pandemic (including a sharp reduction in dental visits due to pandemic restrictions) and staff turnover. The decline in visits would likely have been more severe had it not been for the launch of AVH telehealth services in March 2020.

Table 46: Total Number of Users and Provider Visits, 2018–2019

Totals	2018	2019	2018–2019
Unduplicated patients	4,122	4,221	5,472
Patient visits, all departments	21,913	20,992	42,905

Table 47: Total Number of User and Provider Visits, 2020–2021

Totals	2020	2021	2020–2021
Unduplicated patients	4,064	4,514	5,708
Patient visits, all departments	19,133	20,542	40,125

Through 2019, HRSA Uniform Data System (UDS) reporting rules for health centers defined a UDS-countable "visit" as a face-to-face encounter between a patient and a licensed or credentialed clinical provider. However, in response to the COVID-19 pandemic, this definition was revised in 2020 to include both in-person and "virtual" (i.e., telehealth) visits with a licensed or certified provider.

Although AVH had not previously offered telehealth services, the health center rapidly introduced telehealth visits for certain medical and mental health visits in mid-March 2020. Therefore, the total 2020–2021 visits discussed in this chapter include both telehealth and in-person encounters. (Visit totals for 2019 and earlier years include only in-person visits.)

The 4,064 unduplicated patients AVH served in 2020 was only 157 patients fewer than in 2019. In calendar 2021, the total number of unduplicated patients rose to 4,514.

A close examination of data from the AVH electronic health record system indicates that the decline in the number of patients between 2019 and 2020 was due to **fewer new patients entering the practice** compared to prior years, likely due to the pandemic-associated concerns.

The number of established patients (defined as a patient who had a UDS-reportable provider visit in any prior year) served in 2020 remained almost unchanged from pre-pandemic levels,

but the number of new, first-time patients declined from 898 in 2019 to 730 in 2020. In 2021, the number of new patients rose to 1,058 individuals.

Table 48: Patients by Patient History Category, Totals, 2018–2019 and 2020–2021

Patient History Category	2018	2019	2020	2021
Established patients seen in current year	3,311	3,308	3,317	3,452
Returning from previous year	2,899	2,856	2,869	2,862
Returning from any other prior year	412	452	448	590
New patients	798	898	730	1,058
Total patients for current year	4,109	4,206	4,047	4,510
Seen in previous year, but not current year	1,318	1,253	1,337	1,187

Table 49: Patients by Patient History Category, Percentages, 2018–2019 and 2020–2021

Patient History Category	2018	2019	2020	2021
Established patients seen in current year	80.6%	78.6%	82.0%	76.5%
Returning from previous year	87.6%	86.3%	86.5%	82.9%
Returning from any other prior year	12.4%	13.7%	13.5%	17.1%
New patients	19.4%	21.4%	18.0%	23.5%

Among the established patients served in the past four years, the proportion who had been seen in the immediately previous year has declined steadily from 87.6 percent in 2018 to 82.9 percent in 2021, while the proportion returning from any other prior year grew from 12.4 to 17.1 percent.

This combination of rising numbers of new patients and the return of more established patients from prior years evidences pent-up demand for services within the service area and among AVH patients, which supports the need for AVH to expand capacity.

Telehealth

AVH began offering telehealth primary care visits for the first time in March 2020, in response to COVID-19 pandemic “shelter-in-place” orders issued by the State of California and Sonoma County.

These medical and mental health clinician visits were conducted “virtually” via the Internet, with providers often working from home. Secure Internet connections were established to allow these visits to be captured in AVH’s electronic health record system.

For patients with no Internet connection, telephone visits were also available, although they were not usually reimbursable and were not counted as “virtual visits” in AVH’s UDS reports.

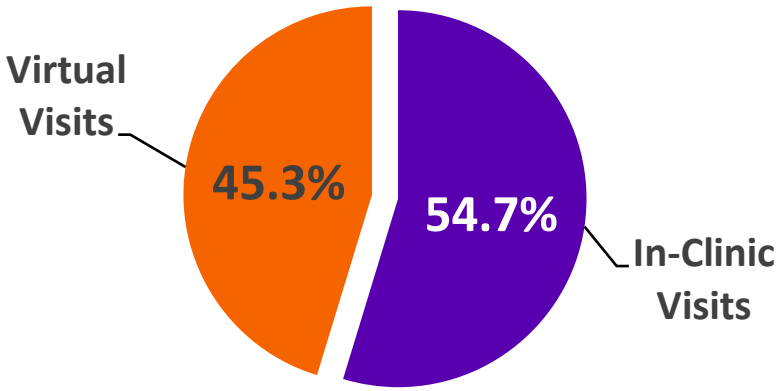
Table 50: Visit Type By Department, 2020–2021

Department and Visit Type	2020	2021
Medical visits, in-clinic	7,754	9,825
Medical visits, virtual	6,419	3,440
Dental visits, in-clinic	3,494	4,505
Dental visits, virtual	0	0
Mental health visits, in-clinic	418	0
Mental health visits, virtual	1,044	2,737
Enabling visits, in-clinic*	381	368
Enabling visits, virtual*	437	1,292
Total in-clinic visits**	12,038	14,698
Total virtual visits**	7,900	7,469
Total in-clinic and virtual**	19,947	22,167

* Enabling visits include RN triage, case management, and other paraprofessional enabling services that are not considered countable provider visits for UDS reporting purposes. ** The totals in the table above include enabling visits not reflected in UDS visit totals.

In 2020, AVH medical providers recorded 7,754 in-clinic visits and 6,419 virtual visits. Virtual visits accounted for 45.3 percent of all 2020 medical visits,[112] 47.6 percent of all 2020 physician visits, and 36.6 percent of all 2020 nurse practitioner visits.

Figure 12: Medical Visits, In-Clinic and Virtual, 2020

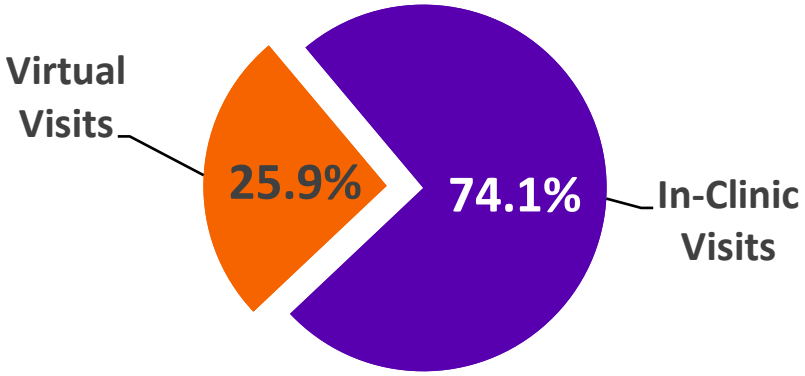


In 2021, the number of in-clinic medical visits rose to 9,825 while virtual visits declined to 3,440 visits (25.9 percent). Thirty percent (30.2 percent) of physician visits and 17.4 percent of nurse

[112] This total does not include telephone-only encounters that did not qualify as visits under HRSA UDS reporting guidelines or most payers' reimbursement rules.

practitioner visits in 2021 were virtual. However, this remained a fairly strong level of acceptance for a service that was relatively new to most patients in 2020.

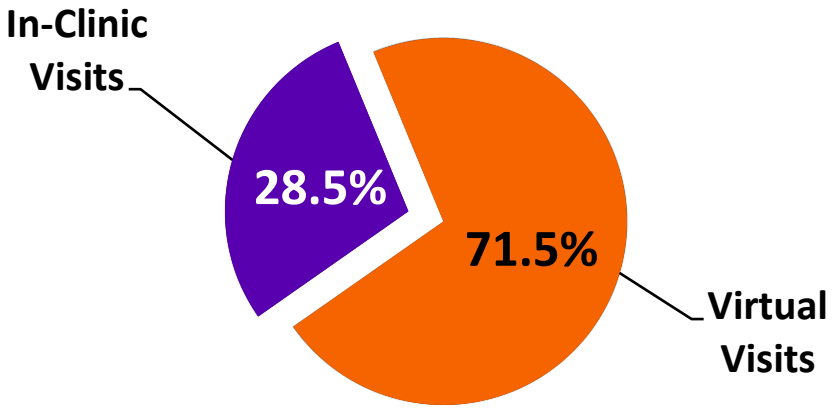
Figure 13: Medical Visits, In-Clinic and Virtual, 2021



Virtual visits were even more important for mental health or substance abuse service visits, where telehealth became the predominant mode of delivery in both 2020 and 2021.

In 2020, the **mental health department** had 1,720 visits, of which 1,230 (71.5 percent) were virtual. This included 77.7 percent of licensed psychologist visits, 52.2 percent of licensed clinical social worker visits, and 72.1 percent of substance use disorder counsellor visits.

Figure 14: Mental Health Visits, In-Clinic and Virtual, 2020



In 2021, virtual visits rose to 100% of **mental health** or substance use visits, as AVH attempted to accommodate the needs of patients with a shrunken behavioral health staff.

Figure 15: Mental Health Visits, In-Clinic and Virtual, 2021

The principal reason for this shift was that both staff and patients had found it impossible to maintain adequate social distancing in the small counseling spaces in the AVH facility, where staff and patient would be sitting less than 6 feet apart for 45 minutes to an hour at a time.

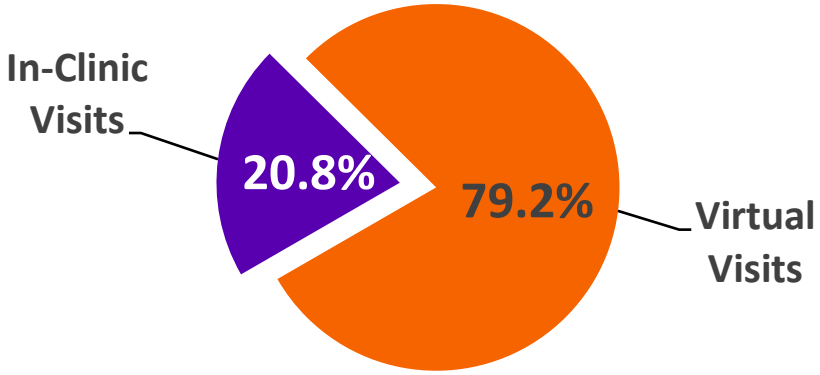
Other enabling services, such as case management, referral coordination, and assistance with financial applications, also gradually shifted to virtual service delivery in 2020 and 2021, accounting for 79 percent of all enabling services in 2021.

Total enabling visits also doubled compared to 2020, suggesting that telehealth is an effective means for AVH to provide these services to a wider range of patients.

Table 51: Other Enabling Services, 2018–2019 and 2020–2021

Visit Type	2018	2019	2020	2021
In-clinic enabling visits	984	991	381	368
Virtual enabling visits	Not offered	Not offered	437	1,292
Total enabling visits	984	991	818	1,660

Figure 16: All Other Visits, In-Clinic and Virtual, 2020–2021



ACCEPTANCE OF TELEHEALTH

The feedback regarding virtual visits from both medical and mental health and substance use disorder counseling patients was positive. Patients appreciated the greater safety of receiving services at home services, the reductions in lost work time, the elimination of travel time, and (in at least some cases) increased privacy.

The ability to provide services from home also allowed AVH to retain and add mental health providers. In 2019, total mental health visits fell due to provider vacancies, and while total mental health visits were fewer still in 2020, the decline might have been substantially greater without telehealth. Mental health visits in 2021 almost doubled compared to 2020, with 100 percent of those visits conducted virtually.

Hardest hit by the pandemic restrictions was AVH's dental department, which could not offer a telehealth alternative to in-clinic services. The dental clinic ended 2020 with only 64.4 percent of its 2019 visits. Part of this gap was due to staff turnover, further discussed in the "Dental Services" section below. The reduction in dental visits accounted for a substantial proportion of the decline in total visits in 2020–2021 compared to the 2018–2019 period.

UTILIZATION PATTERNS – AVERAGE VISITS PER PATIENT

AVH uses average number of visits per patient as a measure of service utilization by different groups of patients. This analysis reveals that the disruptions in service in 2020 and 2021 reduced the average number of visits per unduplicated patient from 7.8 total visits/patient in 2018–2019 to 7.0 total visits/patient in 2020–2021, a decline of 10.3 percent.

Table 52: Average Visits Per Patient per Year by Department, 2018–2019 and 2020–2021

Department	2018	2019	2018–2019	2020	2021	2020–2021
All departments	5.3	5.7	7.8	4.7	4.6	7.0
Medical	3.7	3.8	5.7	3.9	3.5	5.6
Dental	4.4	3.9	5.8	3.3	3.0	4.2
Mental health	6.4	5.1	7.3	6.5	8.4	9.2

These average visit figures reflect the following trends by department:

- **Average medical visits** fell slightly, from 5.7 visits per medical patient in 2018–2019 to 5.6 visits per medical patient in 2020–2021, a decline of only 1.8 percent. Since the medical department benefited from the availability of telehealth visits in 2020, this slight decline mainly reflected short-term fluctuations in AVH's medical provider capacity in both 2019 and 2020.

- **Average dental visits** fell more sharply, from 5.8 visits per dental patient in 2018–2019 to 4.2 visits per dental patient in the 2020–2021 period, a 27.6 percent drop.

- **Average mental health visits** rose from 7.3 visits per mental health patient in 2018–2019 to 9.2 visits per patient in 2019–2020 period, a 26.0 percent increase. This increase was due in part to the implementation of virtual visits in late March 2020.

Other trends reflected in the data are discussed in the sections below.

By Age Group

For patients under 18 years of age, average visits per patient fell from 7.3 visits per patient in 2018–2019 to 5.9 visits/patient in 2020–2021, a 19.2 percent drop. For nonelderly adult patients aged 18–64, the average number of visits per patient fell from 7.5 visits per person in 2018–2019 to 7.1 visits in 2019–2020, a 5.3 percent decrease. For patients 65 and older, average visits per patient fell from 9.6 visits per patient in 2018–2019 to 7.7 visits in 2020–2021, a 19.8 percent drop.

Table 53: Average Visits Per Patient Per Year by Age and Gender, 2018–2019 and 2020–2021

Demographic Group	2018	2019	2018–2019	2020	2021	2020–2021
Under age 18	4.7	4.5	7.3	3.7	3.8	5.9
18-64	5.3	4.9	7.5	4.9	4.8	7.1
65 and over	6.1	5.9	9.6	5.7	4.9	7.7
Female patients	5.9	5.5	9.0	5.4	5.2	8.1
Male patients	4.6	4.4	6.6	4.0	3.8	5.7

By Gender

Average number of visits per female patient dropped from 9.0 visits/patient in 2018–2019 to 8.1 visits for the 2020–2021 period, a 10.0 percent drop. However, the average number of visits for female patients was still well above the average for male patients, which was also true in prior needs assessments.

Average number of visits per male patient fell from 6.6 visits/patient in 2018–2019 period to 5.7 visits/patient in 2020–2021, a 13.6 percent drop.

By Insurance Coverage

Compared to the pre-pandemic period 2018–2019, average visits per patient across all departments fell by 10.3 percent during the first two years of the COVID pandemic. This decline reflected a number of interrelated issues related to COVID-19, including public health cautions about going out unnecessarily, the lack of vaccines for children in the early part of the pandemic, and cost during a time of economic uncertainty.

Some of the changes in utilization varied by patient insurance coverage. For example:

- **Private insurance:** The proportion of AVH patients with private insurance coverage remained fairly constant, going from 27.9 to 26.9 percent of all patients between 2018–2019 and 2020–2021, a decline of 3.6 percent. Patients with private insurance had only 256 fewer visits in 2020–2021 than in 2018–2019. Average visits per patient fell only 3.8 percent, the lowest decline of any insurance group.

- **Medicaid:** The percentage of AVH patients covered by Medi-Cal (Medicaid) fell from 45.1 percent in 2018–2019 to 39.7 percent in 2020–2021, which coincided with a 22.8 percent reduction in the total number of Medi-Cal visits, representing 4,288 fewer visits than 2018–2019. Average visits per patient fell from 9.4 to 8.3 visits, a declined of 11.7 percent.

- **Medicare:** Between 2018–2019 and 2020–2021, the total number of Medicare visits grew by 11.4 percent, but with more Medicare patients, the average number of visits per patient declined from 11.6 in 2018–2019 to 10.4 in 2020–2021.

- **Uninsured:** Although the total number of unduplicated uninsured patients grew by 34.3 percent between 2018–2019 and 2020–2021, the total number of uninsured patient visits actually declined slightly, from 3,222 to 3,203 visits. Consequently, average visits per uninsured patient fell from 4.4 to 3.8 visits/patient, a decrease of 13.6 percent.

Table 54: Total Patient Visits by Insurance Category, 2018–2019 vs. 2020–2021

Insurance Category	2018	2019	2018–2019	2020	2021	2020–2021	2-Year Change	% Change
Uninsured	1,593	1,629	3,222	1,479	1,724	3,203	-19	-0.6%
Medicaid (Medi-Cal)	11,783	11,317	23,100	9,407	9,405	18,812	-4,288	-18.6%
Medicare	4,370	4,052	8,422	4,337	5,056	9,393	+971	+11.5%
Private Insurance	3,986	3,953	7,939	3,751	3,922	7,673	-256	-3.4%
Total Visits	**21,732**	**20,951**	**42,683**	**18,974**	**20,107**	**39,081**	**-3,602**	**-8.4%**

Table 55: Average Visits per Patient by Insurance Category, 2018–2019 vs. 2020–2021

Insurance Category	2018	2019	2018–2019	2020	2021	2020–2021	2-Year Change	% Change
Uninsured	3.3	3.3	4.4	3.2	2.9	3.8	-0.6	-13.6%
Medicaid (Medi-Cal)	6.0	5.8	9.4	5.2	5.2	8.3	-1.1	-11.7%
Medicare	7.1	6.7	11.6	6.7	6.3	10.4	1.2	-10.3%
Private Insurance	3.8	3.4	5.2	3.4	3.4	5.0	0.2	-3.8%
Average Visits, all departments	**5.3**	**5.7**	**7.8**	**4.7**	**4.6**	**7.0**	**0.8**	**-10.3%**

Some of these trends can be put in context based on recognized tendencies of patients in different age groups and insurance categories.

First, Medicare and Medicaid recipients tend to average more visits per patient than do patients in other insurance categories, due to age and/or poor health status. For example, Medicare patients, who are over age 65, disabled, or both, have more health problems, which require more visits. Medicaid patients tend to include more pregnant and postpartum women, and more children, who need more well-child visits and screenings.

Second, the substantially lower visit per patient averages for uninsured and privately insured patients are consistent with the typical economic priorities of those patient groups. As reported in the 2019 needs assessment, the largest proportion of AVH's uninsured patients are adults of working age (18–64), who are more likely than younger or older age groups to be deterred by the time and wages lost while seeking care, particularly if their jobs do not provide sick leave or other paid time off.

The same is generally true of patients in this age range with private insurance, even if that insurance is provided by their employer.

The lower average number of visits by uninsured patients may also reflect the high cost of living (and in particular the high cost of housing) in Sonoma County, which may leave low-income families unable to afford AVH's fees even with sliding scale discounts.

To help address the cost-of-housing issue, in mid-2018, AVH's board approved changes in how income is computed for the sliding scale program, effectively discounting the gross income of patients whose housing costs are greater than 34 percent of their income.

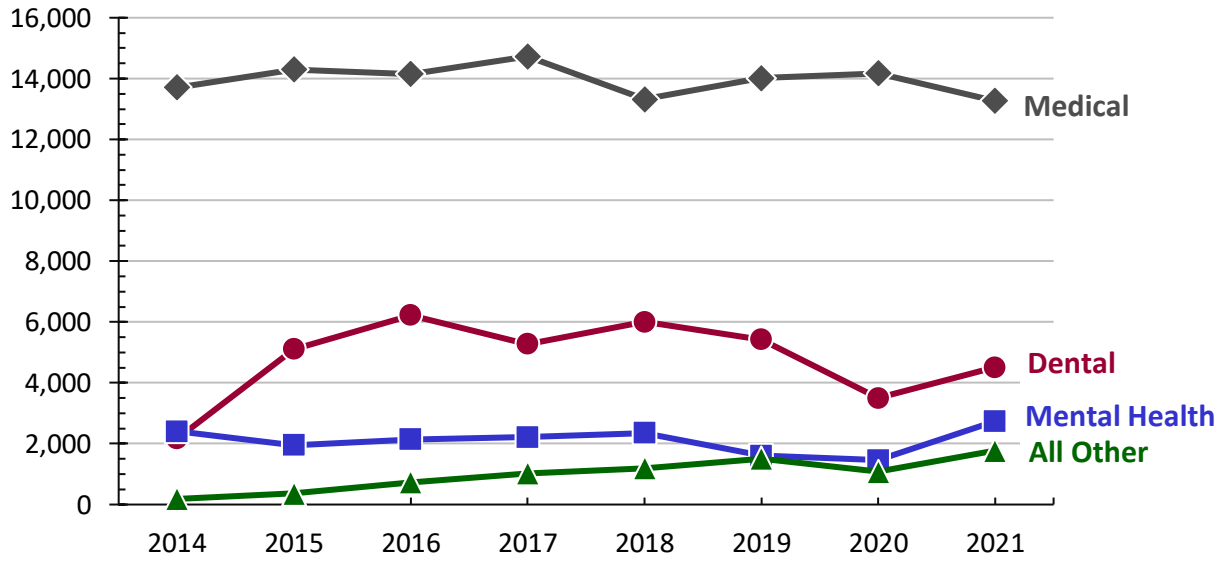
This change contributed to an increase in the average number of visits per uninsured patient, from 3.0 visits in 2017 to 3.3 visits/patient in 2018 and 2019. The average fell to 3.2 visits/patient in 2020 and 2.9 visits/patient in 2021, which may reflect ongoing financial challenges such as pandemic-related lay-offs and rising inflation.

(As discussed in the Service Area chapter, high inflation continues to drive up the cost of groceries and household sundries throughout California, a trend that is likely to hit lower-income households particularly hard.)

UTILIZATION AND STAFFING TRENDS BY DEPARTMENT

AVH service utilization by service type has not always followed a clear pattern of growth or contraction by department over the past five years. Instead, medical, dental, or mental health service volume (as measured in annual visits) has tended to fluctuate even within a single two-year period.

Figure 17: Total Annual Visits by Department, 2014–2021



For example, in the 2018–2019 period, the number of medical visits fell in 2018 and rose in 2019, while the number of dental visits declined from 2018 to 2019. In 2021 dental, mental health, and other visits recovered somewhat from low 2020 volume, while medical visits fell.

Many of these fluctuations were the result of staff turnover, which hit AVH particularly hard because of its small size. Furthermore, even when a provider vacancy is filled, it may take time for the subsequent increase in total visits to be reflected in the departmental data.

Table 56: Provider Visits by Department, 2018–2019

Department	2018	2019	2018–2019
Medical	13,322	13,954	27,276
Dental	5,949	5,431	11,380
Mental health	2,464	1,607	4,071
Total	21,735	20,992	42,727

Table 57: Provider Visits by Department, 2020–2021

Department	2020	2021	2020–2021
Medical	14,176	13,273	28,124
Dental	3,498	4,508	8,929
Mental health	1,465	2,761	3,072
Total	19,133	20,542	40,125

AVH has an organizational goal of improving the health of its patients by increasing the integration of services across disciplines, measured by tracking how many patients are served in multiple departments. That integration is usually a multi-year process, with new patients beginning care in one department and then being referred to other departments, or self-referring to other departments as they learn about other available services.

With fewer in-person visits, particularly in the dental department, that process was slowed during the 2020–2021 period.

In 2020–2021, AVH served a total of 5,697 unduplicated patients for whom complete data is available. Of those patients:

- 4,900 (86.0 percent) had **medical visits**; 3,496 (61.4 percent) had *only* medical visits, up from 58.5 percent in 2018–2019
- 1,915 (33.6 percent) had **dental visits**; 756 (13.3 percent) had *only* dental visits, up from 11.1 percent in 2018–2019
- 457 (8.0 percent) had **mental health visits**; 35 (0.6 percent) had *only* mental health visits
- 986 (17.3 percent) were seen in both the **medical and dental** departments
- 251 (4.4 percent) were seen in both the **medical and mental health** departments

- 167 (2.9 percent) were seen in **all three departments**, down from 238 (4.4 percent) in 2018–2019.

Table 58: Total Patients by Department, 2018–2019 and 2020–2021

Departments	Number of Patients, 2018–2019	Percentage of 2018–2019 Patients	Number of Patients, 2020–2021	Percentage of 2020–2021 Patients
Total patients	5,460	100.0%	5,697	100.0%
Medical	4,806	88.0%	4,900	86.0%
Dental	1,951	35.7%	1,915	33.6%
Mental health	556	10.2%	457	8.0%
Medical only	3,192	58.5%	3,496	61.4%
Dental only	607	11.1%	756	13.3%
Mental health only	46	0.8%	35	0.6%
Medical and dental	1,105	20.2%	986	17.3%
Medical and mental health	271	5.0%	251	4.4%
Dental and mental health	0	0.0%	0	0.0%
All three departments	238	4.4%	167	2.9%

Medical Services

Despite a series of obstacles that included the demands of launching a COVID-19 testing program, reorganizing patient flow and protocols to ensure patient and staff safety during the pandemic, and having several providers take family medical leave in early 2020, AVH had more total medical visits in 2020 than in 2019 (14,170 visits versus 13,954 visits). However, total medical visits fell in 2021 to 12,273 visits due to medical provider turnover.

Medical visits are set to rise again in the second half of 2022 with the hiring of a replacement physician and possibly an additional nurse practitioner.

STAFFING

Although a number of providers took family leave during the 2019 study period, AVH's family physician full-time equivalents (FTEs) increased from 3.01 FTEs in 2019 to 3.36 FTEs in 2020. This was due to the use of fill-in time and other AVH physicians expanding their hours or taking extra shifts to temporarily fill the gaps.

As the COVID-19 pandemic unfolded, it became more difficult for staff to work in this way. Providers working remotely made it harder for them to assist one another. Time devoted to COVID-19 testing, and later to managing community-wide vaccine programs at the local Cloverdale Citrus Fairground, also drew heavily on the time of support staff and required at least one provider per community event.

Then, in mid-2021, both the longtime AVH medical director and the medical director's physician spouse departed to relocate out of state. While the new medical director is a well-established AVH physician, the other staff could not fully absorb the workload of the two clinicians who left. For example, those two providers had been leaders in local opioid response efforts, duties other staff providers were not prepared to take on. At the end of 2021, another physician also departed, a vacancy that has taken more than six months to fill.

PATIENTS

Remarkably, by the end of the second year of the pandemic, two-year unduplicated medical patients had actually increased, from 4,806 patients in 2018–2019 to 4,900 in 2020–2021.

However, there were shifts in patient mix. The number and percentage of medical patients under age 18 fell from 1,176 patients (24.5 percent) in 2018–2019 to 1,063 (21.7 percent) in 2020–2021, possibly because parents deferred care for children, for whom the COVID-19 vaccines were as yet unavailable. The number of nonelderly adult patients (aged 18–64) in the medical department increased from 2,892 to 2,927 patients, although the percentage decreased slightly, from 60.2 percent to 59.7 percent. The number of medical patients over 65 rose from 738 (15.4 percent) to 908 (18.3 percent).

The number of Hispanic medical patients rose slightly from 2,018 in 2018–2019 to 2,083 in 2020–2021, as did the number of White non-Hispanic patients and American Indian patients. However, the numbers of Black, Asian, Pacific Islanders, and multiracial patients decreased.

Table 59: Medical Users by Age, Gender, and Ethnicity, 2018–2019 and 2020–2021

Demographic Group	Number of Patients, 2018–2019	Percentage of 2018–2019 Patients	Number of Patients, 2020–2021	Percentage of 2020–2021 Patients
Total two-year medical users	4,806	100.0%	4,900	100.0%
Under 18 years	1,176	24.5%	1,065	21.7%
18-64 years	2,892	60.2%	2,927	59.7%
65 years and older	738	15.4%	908	18.3%
Male	2,310	48.1%	2,338	47.7%
Female	2,496	51.9%	2,562	52.3%
Hispanic, any race	2,018	42.0%	2,083	42.5%
White, non-Hispanic	2,216	46.1%	2,156	44.0%
Black, non-Hispanic	36	0.7%	31	0.6%
Asian, non-Hispanic	63	1.3%	47	1.0%
American Indian, non-Hispanic	32	0.7%	43	0.9%
Native Hawaiian or other Pacific Islanders, Non-Hispanic	19	0.4%	15	0.3%
Other or 2 or more, non-Hispanic	143	3.0%	132	2.7%
Unknown or refused to report	279	5.8%	393	8.0%

PRODUCTIVITY

Despite the staffing fluctuations, AVH's physician productivity remained relatively consistent through both 2019 and 2020, with 3,455 visits per FTE in 2019 and 3,345 visits per FTE in 2020, a 3.2 percent drop.

As physician departures and the COVID-19 pandemic continued to take their toll on medical staff in 2021, AVH physician productivity fell to 2,981 visits per primary care physician FTE, a decline of 10.9 percent from 2020.

However, productivity for all three years still exceeded the UDS-reported national productivity averages for primary care physicians, which were 2,835 visits per FTE in 2019, 2,710 visits per FTE in 2020, and 2,688 visits per FTE in 2021.[113]

AVH's nurse practitioner productivity was 3,506 visits per FTE in 2019, 3,534 visits per FTE in 2020, and 4,193 visits per FTE in 2021. Nationally, average nurse practitioner productivity was 2,515 visits per FTE in 2019, 2,377 visits per FTE in 2020, and 2,430 visits per FTE in 2021.[114]

Dental Services

Pandemic-related closures during early 2020 had a dipropionate impact on AVH's dental unit, since most dental services must be provided in person. Additionally, even once the state-mandated restrictions on nonemergency services was lifted, not all patients were willing or able to return for dental care. Consequently, total dental visits fell from 11,380 in the period 2018–2019 to 8,929 in the period 2020–2021, a 21.5 percent drop. Most of that drop occurred in 2020; 2021 saw a partial recovery.

STAFFING

One AVH dentist was laid off during the shutdown and chose not to return after services resumed in summer of 2020. AVH then made an offer to its parttime dental director to become fulltime, which the director agreed to do. However, the dental unit's dentist FTEs fell from 1.07

[113] National productivity averages for FQHC primary care physicians were calculated based on 2019–2021 HRSA Health Center Program UDS data summaries (retrieved via *https://data.hrsa.gov/tools/data-reporting/program-data*) by dividing total family physician visits (including clinic visits and virtual visits) by the total family physician FTEs shown on Line 1 of Table 5: Staffing and Utilization for each year.

[114] National productivity averages for FQHC nurse practitioners (NPs) were calculated based on 2019–2021 HRSA Health Center Program UDS data summaries (retrieved via *https://data.hrsa.gov/tools/data-reporting/program-data*) by dividing total NP visits (including clinic visits and virtual visits) by the total nurse practitioner FTEs shown on Line 9a of Table 5: Staffing and Utilization for each year.

in 2019 to 0.79 FTEs in 2020. A second dentist was hired in early 2022, bringing total dentist FTEs to 1.80.

A second parttime hygienist was hired in 2021. After converting an administrative office to an operatory to allow additional hygienist time, AVH hired a third hygienist in October 2022, bringing total hygienist FTEs to 1.80.

PATIENTS

Even with the temporary reduction in visits in 2020, AVH appears to have retained nearly all of its pre-pandemic dental patients. The total number of unduplicated patients was 1,951 in 2018–2019 and 1,915 in 2020–2021, a decline of only 1.8 percent.

The percentage of female dental patients rose in the 2020–2021 period, as did the percentage of patients over age 65. However, the number and percentage of dental patients under age 18 fell, in part because for much of this period, there were no COVID-19 vaccines approved for younger children. The proportion of dental patients aged 18–64 also declined, from 52.8 percent of all dental patients in 2018–2019 to 49.7 percent in 2020–2021.

Table 60: Dental Users by Age, Gender, and Ethnicity, 2018–2019 and 2020–2021

Demographic Group	Number of Patients, 2018–2019	Percentage of 2018–2019 Patients	Number of Patients, 2020–2021	Percentage of 2020–2021 Patients
Total two-year dental users	1,951	100.0%	1,915	100.0%
Under 18 years	691	35.4%	569	29.7%
18-64 years	1,031	52.8%	951	49.7%
65 years and older	229	11.7%	395	20.6%
Male	872	44.7%	840	43.9%
Female	1,079	55.3%	1,075	56.1%
Hispanic, any race	964	49.4%	846	44.2%
White, non-Hispanic	720	36.9%	816	42.6%
Black, non-Hispanic	21	1.1%	17	0.9%
Asian, non-Hispanic	33	1.7%	25	1.3%
American Indian, non-Hispanic	13	0.7%	15	0.8%
Native Hawaiian or other Pacific Islanders, Non-Hispanic	<10	<1.0%	<10	<1.0%
Other or 2 or more, non-Hispanic	79	4.0%	69	3.6%
Unknown or refused to report	113	5.8%	121	6.3%

Note: Data has been suppressed where the number of patients is fewer than 10, in the interests of privacy

The ethnic mix of dental patients shifted more than among medical patients between 2018–2019 and 2020–2021. The percentage of white, non-Hispanic dental patients rose from 36.9 percent to 42.6 percent, while the percent of Hispanic patients fell from 49.2 percent to 44.2

percent. Decreases in other patients from other minority groups was similar to the shifts observed in the medical department.

Some of the shifts in dental patient mix may reflect an influx of patients from the dental director's former private practice, which closed with the director's shift to fulltime.

PRODUCTIVITY

Pandemic-related closures and staffing changes in 2020 caused AVH's dental productivity to fall from 4,160 visits per dentist FTE in 2019 to 3,409 per FTE in 2020, an 18.0 percent drop. Dental productivity improved in 2021, but was still below 2019 levels, at 3,098 visits per dentist FTE. The pace of dental visits so far in 2022 suggests that productivity for this year will exceed that of 2021.

AVH's dental productivity levels in 2019, 2020, and 2021 were above the nationwide UDS averages of 2,624 visits per dentist FTE in 2019, 1,928 visits per FTE in 2020, and 2,176 visits per FTE in 2021.[115] The decline in the national productivity suggests that the pandemic-related factors that affected AVH's dental practice were common to health centers throughout the country. The second dentist recruited to the end of 2021 will facilitate additional dental patient visits going forward.

Although dental hygienist staffing remained nearly unchanged, rising slightly from 0.50 FTEs in 2019 to 0.53 FTEs in 2020, the drop in total dental visits in 2020 also reduced in hygienist productivity. Dental hygienist productivity declined from 1,944 visits per FTE in 2019 to 1,511 visits per FTE in 2020, again reflecting the temporary closures that year. AVH's dental hygienist productivity fell further in 2021, to 1,407 visits per hygienist FTE.

However, this decline is likely to be temporary now that AVH has added two additional hygienists (for a total of three) and an additional hygienist operatory. Additionally, AVH hygienist productivity has remained well above the national averages of 1,145 visits per hygienist FTE in 2019, 770 visits per FTE in 2020, and 995 visits per hygienist FTE in 2021.[116]

[115] National productivity averages for FQHC dentists were calculated based on 2019–2021 HRSA Health Center Program UDS data summaries (retrieved via *https://data.hrsa.gov/tools/data-reporting/program-data*) by dividing total dentist visits (including clinic visits and virtual visits) by the total dentist FTEs shown on Line 16 of Table 5: Staffing and Utilization for each year.

[116] National productivity averages for FQHC dental hygienists were calculated based on 2019–2021 HRSA Health Center Program UDS data summaries (retrieved via *https://data.hrsa.gov/tools/data-reporting/program-data*) by dividing total dental hygienist visits (including clinic visits and virtual visits) by the total dental hygienist FTEs shown on Line 17 of Table 5: Staffing and Utilization for each year.

Mental Health Services

Alexander Valley Healthcare expanded its mental health services after becoming federally funded in 2013. Total mental health visits increased from 1,842 in 2013 to 2,544 in 2014. Annual mental health visits subsequently remained in the 2,500-visit range through 2018. However, beginning in 2019, staff turnover in the mental health department reduced total annual visits to around 1,600.

Ongoing acceptance of telehealth for counseling services would help to mitigate one of AVH's principal space-related problems: a lack of counseling rooms. However, not all patients may be comfortable with the telehealth format, and 9.5 percent of service area households lack the Internet connections needed for virtual visits.[117]

Even with the availability of virtual visits, total mental health visits fell by 8.8 percent between 2019 and 2020, from 1,607 visits to 1,465. However, mental health visits rose again in 2021, to 2,761 visits.

AVH was not alone in seeing a drop in mental health visits in 2020. Compared to the same period in 2019, the Centers for Medicare & Medicaid Services (CMS) estimate a 34 percent decline in the number of mental health services utilized by children under age 19 and a 22 percent decline in the number of mental health services utilized by adults aged 19–64.[118]

PATIENTS

The total number of unduplicated mental health patients fell from 556 in the pre-pandemic 2018–2019 period to 457 patients in the 2020–2021 period, a 17.8 percent drop.

Most of that decrease was among male patients, whose number declined from 216 to 136 patients. The biggest declines by age range were working-age adults (aged 18–64).

Although the proportion of Hispanic behavioral health patients rose slightly from 33.6 percent in 2018–2019 to 35.7 percent in 2020–2021, the total number of Hispanic patients declined, as did the total numbers of patients in other ethnic groups.

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[117] U.S. Census Bureau, American Community Survey 5-year estimates, 2016–2020.

[118] This estimate is based on analysis of actual claims data for CHIP and Medicaid, as cited in the Centers for Medicare & Medicaid Services, *Medicaid & CHIP and the COVID-19 Public Health Emergency: Preliminary Medicaid and CHIP Data Snapshot: Services through October 31, 2020*, *https://www.medicaid.gov/state-resource-center/downloads/covid-19-medicaid-data-snapshot.pdf*.

Table 61: Mental Health Users by Age, Gender, and Ethnicity, 2018–2019 and 2020–2021

Demographic Group	Number of Patients, 2018–2019	Percentage of 2018–2019 Patients	Number of Patients, 2020–2021	Percentage of 2020–2021 Patients
Total mental health users	556	100.0%	457	100.0%
Under 18 years	122	21.9%	95	20.8%
18-64 years	369	66.4%	299	65.4%
65 years and older	65	11.7%	63	13.8%
Male	216	38.8%	136	29.8%
Female	340	61.2%	321	70.2%
Hispanic, any race	187	33.6%	163	35.7%
White, non-Hispanic	301	54.1%	231	50.5%
Black, non-Hispanic	<10	1.1%	<10	<1.0%
Asian, non-Hispanic	<10	<1.0%	<10	<1.0%
American Indian, non-Hispanic	<10	1.1%	<10	<1.0%
Native Hawaiian or other Pacific Islanders, Non-Hispanic	0	0.0%	0	0.0%
Other or 2 or more, non-Hispanic	20	3.6%	20	4.4%
Unknown or refused to report	33	5.9%	36	7.9%

Note: Data has been suppressed where the number of patients is fewer than 10, in the interests of privacy

PRODUCTIVITY

Productivity for AVH licensed psychologists in 2019 was 1,076 visits per FTE, very close to the 2019 national average of 1,089 visits per FTE.

During pandemic-impacted 2020, AVH's licensed psychologist productivity fell to 853 visits per FTE, below the UDS-reported national average of 1,115 visits per psychologist FTE for 2020. AVH's psychologist productivity recovered in in 2021, rising to 1,189 visits per FTE, slightly above the national average of 1,155 visits per VTE.

AVH licensed clinical social workers (LCSWs) averaged 1,066 visits per FTE in 2019, ahead of the national LCSW productivity average of 918 visits per FTE. In 2020, AVH LCSW productivity fell to 952.6 visits per FTE, approximately the same as the UDS-reported national average of 952 visits per LCSW FTE. In 2021, AVH's LCSW productivity rose to 1,121 visits per FTE, ahead of the national average of 988 visits per FTE.

Substance use counseling is AVH's newest behavioral health service, and the only one in which productivity is still below the national average. Total visits fell by half between 2019 and 2020 (from 511 to 258), reflecting the difficulty of serving a highly vulnerable population during a stressful period. Also, although 72.1 percent of 2020 visits (186 visits) were virtual, substance use counseling utilization has been driven by internal referrals from other AVH clinicians, which are more difficult if patients don't have face-to-face provider visits in other departments.

AVH is currently recruiting an additional licensed clinical social worker, and a possibly also a psychiatric nurse, to increase mental health department capacity. AVH's mental health services director is also working on strategies to expand contact with AVH patients who may need substance use treatment services.

Chronic Medical and Mental Health Conditions

As in the two previous needs assessments, this assessment included an analysis of data on the numbers of unduplicated AVH patients served in the periods 2018–2019 and 2020–2021 with specific diagnosed chronic conditions. Chronic conditions were divided into two groups:[119]

Group A includes the following chronic medical conditions:

- Asthma
- Chronic bronchitis and emphysema
- Chronic pain
- Diabetes mellitus
- Heart disease (selected)
- Hypertension
- Overweight and obesity.

Group B includes the following chronic mental health or behavioral health conditions:

- Alcohol-related disorders
- Tobacco use disorder
- Other substance-related disorders
- Depression and other mood disorders

[119] The definitions of these diagnosis coding groups were taken from the UDS report criteria, with the exception of chronic pain, for which diagnosis codes are not part of UDS Table 6A. The codes used were 338.21, 338.28, 338.29, 338.3, 338.4, G89.21, G89.22, G89.28, G89.29, G89.3, or G89.4.

- Anxiety disorders, including PTSD
- Attention deficit and disruptive behavior disorders
- Other mental disorders, excluding drugs or alcohol.

In 2020–2021, **more than half (50.3 percent) of all AVH patients** had one or more chronic medical or mental health conditions:

- **36.6 percent (2,088 patients)** had one or more **chronic medical conditions**, including hypertension, overweight or obesity, chronic pain, diabetes, asthma, heart disease and chronic lower respiratory disease;
- **31.9 percent (1,822 patients)** had one or more **chronic mental or behavioral health conditions**, including depression, anxiety disorders, including PTSD, substance use disorders, attention deficit disorders, and other mental health conditions.
- **18 percent (1,040 patients)** had BOTH one or more chronic medical AND one or more mental health conditions.

Among those patients with common chronic medical conditions in 2020–2021 were:

- 927 patients with hypertension
- 659 patients with overweight or obesity
- 536 patients with chronic pain
- 447 patients with diabetes mellites
- 372 patients with asthma
- 337 patients with heart disease, and
- 150 patients with chronic lower respiratory disease.

Among those patients with common mental health diagnoses during that period were:

- 935 patients with anxiety disorders, including PTSD
- 735 patients with depression
- 181 patients with substance use related disorders

- 148 patients with tobacco use disorders
- 111 patients with alcohol use disorders
- 82 patients with attention deficit disorders, and
- 775 patients with other mental health diagnoses other than drug or alcohol use.

A major limitation of this data is that the UDS data used for these calculations does not count patients who have not been seen recently. The pandemic has increased the number of patients who have not had a visit in either of the last two calendar years, even though AVH staff may still be these patients' most recent care primary care providers. Therefore, the above figures should be considered minimum counts.

Table 62: Patients with Selected Chronic Conditions, 2018–2019 and 2020–2021

Diagnoses	# of Patients, 2018–2019	% of 2018–2019 Patients	# of Patients, 2020–2021	% of 2020–2021 Patients	% Change in Patients
GROUP A					
Asthma	360	6.6%	372	6.5%	3.3%
Chronic bronchitis and emphysema	129	2.4%	150	2.6%	16.3%
Chronic pain	480	8.8%	536	9.4%	11.7%
Diabetes mellitus	383	7.0%	447	7.8%	16.7%
Heart disease (selected)	253	4.6%	337	5.9%	33.2%
Hypertension	776	14.2%	927	16.2%	19.5%
Overweight and obesity	569	10.4%	659	11.5%	15.8%
Any Group A diagnosis	**1,860**	**34.0%**	**2,088**	**36.6%**	**12.3%**
GROUP B					
Alcohol-related disorder	90	1.6%	111	1.9%	23.3%
Tobacco use disorder	140	2.6%	148	2.6%	5.7%
Other substance-related disorders	190	3.5%	181	3.2%	-4.7%
Depression and other mood disorders	659	12.0%	735	12.9%	11.5%
Anxiety disorders, including PTSD	770	14.1%	935	16.4%	21.4%
Attention deficit and disruptive behavior disorders	81	1.5%	82	1.4%	1.2%
Other mental disorders, excluding drugs or alcohol	645	11.8%	775	13.6%	20.2%
Any Group B diagnosis	**1,611**	**29.4%**	**1,822**	**31.9%**	**15.8%**
Any diagnosis from Group A **or** Group B	2,595	47.4%	2,870	50.3%	10.6%
Any Group A **and** any Group B diagnosis	876	16.0%	1040	18.2%	18.7%
No diagnosis from Group A or B	2,877	52.6%	2,838	49.7%	-1.4%
Total unduplicated patients	**5,460**	**100.0%**	**5,697**	**100.0%**	**+0.4%**

Source: EHR data for unduplicated AVH patients seen Jan. 1,2018–Dec. 31, 2019, and Jan. 1, 2020–Dec. 31, 2021 for whom complete data was available in all necessary fields

Analyzing patients with chronic conditions by age group yields several notable observations:

- Patients under 18 generally have lower rates of chronic illness, with the exception of asthma, which affects a greater proportion of children than of any other age range. However, approximately 14.3 percent of AVH patients under 18 had at least one chronic medical condition, and 18.3 percent had one or more behavioral health conditions.

- Nearly 30 percent (29.7 percent) of adult patients aged 18–50 had at least one chronic medical condition, and 33.8 percent had one or more chronic behavioral health conditions.

- More than half (52.9 percent) of older nonelderly adult patients (aged 51–64) have at least one chronic medical condition, and 39.0 percent have one or more behavioral health conditions. Almost two-thirds (65.2 percent) have been diagnosed with either a chronic condition or a mental health condition.

- Almost one-third (29.3 percent) of adult patients aged 50–64 have BOTH one or more chronic medical conditions AND one or more behavioral health conditions.

- Patients aged 51–64 years have the highest percentage of chronic mental or behavioral health conditions: 17.7 percent have been diagnosed with depression, and one in five (20.0 percent) have been diagnosed with an anxiety disorder (including PTSD).

- Two-thirds of patients aged 65 and older have at least one chronic medical condition or at least one behavioral health condition; 58.9 percent have one or more chronic medical conditions, and 36.1 percent have a behavioral health condition.

- Approximately 29.4 percent of all patients over 65 have BOTH a chronic medical disease and one or more mental health conditions.

Table 63: Chronic Conditions by Patient Age Group, 2020–2021

Diagnosis	All, #	All, %	Under 18, #	Under 18, %	18–50, #	18–50, %	51–64, #	51–64, %	65+, #	65+, %
Group A										
Asthma	372	6.5%	80	6.6%	146	6.4%	78	7.4%	68	6.0%
Chronic bronchitis and emphysema	150	2.6%	<10	<1.0%	<10	<1.0%	58	5.5%	84	7.4%
Chronic pain	536	9.4%	<10	<1.0%	172	7.5%	178	16.8%	181	15.8%
Diabetes mellitus	447	7.8%	<10	<1.0%	95	4.2%	152	14.4%	197	17.3%

Diagnosis	All, #	All, %	Under 18, #	Under 18, %	18–50, #	18–50, %	51–64, #	51–64, %	65+, #	65+, %
Heart disease (selected)	337	5.9%	<10	<1.0%	35	1.5%	87	8.2%	214	18.7%
Hypertension	927	16.2%	<10	<1.0%	141	6.2%	298	28.1%	486	42.6%
Overweight and obesity	659	11.5%	101	8.3%	331	14.5%	144	13.6%	83	7.3%
Any Group A diagnosis	**2,088**	**36.6%**	**175**	**14.3%**	**680**	**29.7%**	**560**	**52.9%**	**673**	**58.9%**
Group B										
Alcohol-related disorder	111	1.9%	<10	<1.0%	51	2.2%	38	3.6%	22	1.9%
Tobacco use disorder	148	2.6%	<10	<1.0%	56	2.4%	60	5.7%	32	2.8%
Other substance-related disorders	181	3.2%	<10	<1.0%	111	4.9%	51	4.8%	17	1.5%
Depression and other mood disorders	735	12.9%	30	2.5%	328	14.3%	187	17.7%	190	16.6%
Anxiety disorders, including PTSD	935	16.4%	83	6.8%	457	20.0%	220	20.8%	175	15.3%
Attention deficit and disruptive behavior disorders	82	1.4%	44	3.6%	30	1.3%	<10	<1.0%	<10	<1.0%
Other mental disorders, excluding drug or alcohol	775	13.6%	143	11.7%	265	11.6%	172	16.2%	195	17.1%
Any Group B diagnosis	**1,822**	**31.9%**	**223**	**18.3%**	**774**	**33.8%**	**413**	**39.0%**	**412**	**36.1%**
Any diagnosis from Group A **or** Group B	2,870	50.3%	349	28.6%	1,105	48.3%	667	63.0%	749	65.6%
Any Group A **and** any Group B diagnosis	1040	18.2%	49	4.0%	349	15.3%	306	28.9%	336	29.4%
No diagnosis from Group A or B	2,838	49.7%	871	71.4%	1,182	51.7%	392	37.0%	393	34.4%
Total patients	**5,708**		**1,220**		**2,287**		**1,059**		**1,142**	

Note: Data has been suppressed where the number of patients is fewer than 10, in the interests of privacy

The percentages of patients with chronic conditions are generally similar for patients who live within the AVH service area and those who live outside the primary service area. This was true for both the period 2020–2021 and the 2018–2019 period.

Table 64: Patients with Selected Chronic Conditions by Patient Origin, 2020–2021

Diagnosis	All, #	All, %	In Service Area, #	In Service Area, %	Out of Area, #	Out of Area, %
Group A						
Asthma	372	6.5%	292	6.5%	80	6.7%
Chronic bronchitis and emphysema	150	2.6%	108	2.4%	42	3.5%
Chronic pain	536	9.4%	393	8.7%	143	12.0%
Diabetes mellitus	447	7.8%	360	8.0%	87	7.3%
Heart disease (selected)	337	5.9%	251	5.6%	86	7.2%
Hypertension	927	16.2%	717	15.9%	210	17.6%
Overweight and obesity	659	11.5%	537	11.9%	122	10.2%
Any Group A diagnosis	2,088	36.6%	1,633	36.2%	455	38.0%
Group B						
Alcohol-related disorder	111	1.9%	84	1.9%	27	2.3%
Tobacco use disorder	148	2.6%	117	2.6%	31	2.6%
Other substance-related disorders	181	3.2%	121	2.7%	60	5.0%
Depression and other mood disorders	735	12.9%	567	12.6%	168	14.0%
Anxiety disorders, including PTSD	935	16.4%	736	16.3%	199	16.6%
Attention deficit and disruptive behavior disorders	82	1.4%	58	1.3%	24	2.0%
Other mental disorders, excluding drugs or alcohol	775	13.6%	618	13.7%	157	13.1%
Any Group B diagnosis	1,822	31.9%	1,413	31.3%	409	34.2%
Any diagnosis from Group A **or** Group B	2,870	50.3%	2,260	50.1%	610	51.0%
Any diagnosis from Group A and Group B	1040	18.2%	786	17.4%	254	21.2%
No diagnosis from Group A or B	2,838	49.7%	2,252	49.9%	586	49.0%
Total patients	**5,708**		**4,512**		**1,196**	

Patients with chronic medical and/or mental health conditions have become a large part of AVH's clinical workload, in part because they are more complex cases and have greater average numbers of visits per patient over a one- or two-year period.

Table 65: All-Department Two-Year Average UDS Visits, 2018–2019 and 2020–2021

Diagnosis Group	2018–2019 Patients	2018–2019 Avg. Visits/ Patient	2020–2021 Patients	2020–2021 Avg. Visits/ Patient*
Any Group A diagnosis	1,860	12.6	2,088	11.8
Any Group B diagnosis	1,611	14.0	1,822	13.3
Any Group A or B diagnosis	2,595	12.0	2,870	11.0
Any Group A and any Group B diagnosis	876	16.7	1,040	16.7
No diagnosis from Group A or Group B	2,877	4.9	2,838	4.5
All patients	**5,472**	**8.3**	**5,708**	**7.5**

* Includes medical, mental health, and dental visits

In 2020–2021, patients with one or more chronic medical conditions averaged 11.8 visits per patient across all departments over the two-year period, down from 12.8 visits/patient in the 2018–2019 period. By contrast, patients *without* a chronic medical condition or behavioral health condition averaged just 4.5 visits to all departments during the period, down slightly from 4.9 visits to all departments in the 2018–2019 period. Additionally:

- **Patients with at least one Group B chronic behavioral health condition** averaged 13.3 visits across to all departments in the 2020–2021 period. This all-department average represents a drop from an average of 14.0 visits in 2018–2019.

- **Patients with BOTH a chronic medical condition AND one or more diagnosed behavioral health conditions** averaged 16.7 visits across all departments in 2020–2021, the same as in 2018–2019.

There may be several causes for this greater utilization of services. Many patients with chronic medical conditions also suffer from depression and anxiety; this is particularly true for patients with chronic pain, heart disease, or other conditions that limit physical mobility.

The following tables illustrate the overlap of AVH patients with chronic medical conditions and chronic behavioral health conditions.

Table 66: Patients with Both Chronic Medical and Mental Health Conditions, Totals, 2020–2021

Diagnosis Groups	Alcohol related disorders	Tobacco use disorder	Other substance related disorders	Depression and other mood disorders	Anxiety disorders including PTSD	Attention deficit and disruptive behavior disorder	Other mental disorders, excluding drug or alcohol	Any diagnosis from Group B
Asthma	<10	14	28	100	120	<10	93	198
Chronic lower respiratory diseases	13	28	24	54	61	<10	39	107
Chronic pain	35	53	84	214	247	12	181	391
Diabetes mellitus	12	19	15	100	89	<10	100	211
Heart disease	12	25	15	83	92	<10	87	192

Diagnosis Groups	Alcohol related disorders	Tobacco use disorder	Other substance related disorders	Depression and other mood disorders	Anxiety disorders including PTSD	Attention deficit and disruptive behavior disorder	Other mental disorders, excluding drug or alcohol	Any diagnosis from Group B
Hypertension	35	53	37	223	222	<10	210	474
Overweight and obesity	13	23	33	150	166	13	122	300
Any diagnosis from Group A	72	112	123	490	551	32	448	1,040

Note: Data has been suppressed where the number of patients is fewer than 10, in the interests of privacy

Table 67: Patients with Both Chronic Medical and Mental Health Conditions, Percentage of All Patients With One or More Chronic Conditions, 2020–2021

Diagnosis Groups	Alcohol related disorders	Tobacco use disorder	Other substance related disorders	Depression and other mood disorders	Anxiety disorders including PTSD	Attention deficit and disruptive behavior disorder	Other mental disorders, excluding drug or alcohol	Any diagnosis from Group B
Asthma	<1.0%	1.3%	2.7%	9.6%	11.5%	<1.0%	8.9%	19.0%
Chronic lower respiratory diseases	1.3%	2.7%	2.3%	5.2%	5.9%	<1.0%	3.8%	10.3%
Chronic pain	3.4%	5.1%	8.1%	20.6%	23.8%	1.2%	17.4%	37.6%
Diabetes mellitus	1.2%	1.8%	1.4%	9.6%	8.6%	<1.0%	9.6%	20.3%
Heart disease	1.2%	2.4%	1.4%	8.0%	8.8%	<1.0%	8.4%	18.5%
Hypertension	3.4%	5.1%	3.6%	21.4%	21.3%	<1.0%	20.2%	45.6%
Overweight and obesity	1.3%	2.2%	3.2%	14.4%	16.0%	1.3%	11.7%	28.8%
Any diagnosis from Group A	6.9%	10.8%	11.8%	47.1%	53.0%	3.1%	43.1%	

Note: Data has been suppressed where the number of patients is fewer than 10, in the interests of privacy

The correlation of chronic medical conditions such as chronic pain, diabetes, hypertension, or overweight and obesity with mental health diagnoses is clear, as are the risks of treating only one-half of the patient's needs.

PART FOUR: Health Status Update

Health Rankings

In many measures of health, Sonoma County ranks well above average, both compared to other California counties and on a national level. Among California's 58 counties, the County Health Rankings & Roadmaps project recently ranked Sonoma County:

- **8th healthiest in health outcomes** such as premature death, low birthweight infants, and poor physical or mental health days per year, and
- **11th healthiest in health factors** such as diet, exercise, use of alcohol and other substances, access to care, and social economic factors (e.g., food, housing, and childcare cost burdens impacting health).[120]

Sonoma County's federally qualified health centers, which provide primary care to over 22.5 percent of Sonoma County's population,[121] contribute to the county's better outcomes, as do the county's health maintenance organizations (HMOs). They do this by providing well-organized care designed around the patient-centered health home model, which focuses on providing continuity of healthcare providers, case management, and supportive services that are aimed at reducing the impact of social issues like food insecurity on health outcomes.

However, some portions of Sonoma County populations are distinctly healthier, while others have serious underlying health problems. Furthermore, the presence of an effective healthcare system that achieves positive health outcomes (such as lower mortality rates) does not necessarily change the fact that certain populations remain at high risk.

Additionally, Alexander Valley Healthcare's largely rural location at the far northern end of Sonoma County places it contiguous to rural southern Mendocino and Lake Counties (and closer to those counties than to central Sonoma County, which is predominantly urban and

[120] County Health Rankings, "2022 State Report California 2022: Sonoma (SM)," County Health Rankings & Roadmaps, April 2022, *https://www.countyhealthrankings.org/app/california/2022/rankings/outcomes/*. Also see the National Report Summary at *https://www.countyhealthrankings.org/reports/2022-county-health-rankings-national-findings-report*. County Health Rankings & Roadmaps is a collaboration between the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute. The 2022 rankings are based on pre-pandemic data from 2018–2020 and therefore do not reflect the full impact of COVID-19.

[121] Based on a total of 109,343 unduplicated annual users in the 2021 Uniform Data System (UDS) reports for Sonoma County's six federally funded community health centers (retrieved from *https://data.hrsa.gov/tools/data-reporting/program-data*), divided by the U.S. Census Bureau estimate of the county's 2021 population, 485,887.

suburban). These two counties, which account for 10.1 percent of AVH's growing patient base, score far differently than Sonoma County does in the 2022 County Health Rankings:

- **Mendocino County** ranked 44th out of California's 58 counties in health outcomes, and 39th in other health factors.
- **Lake County** ranks 56th out of the 58 counties in health outcomes, and 48th in other health factors.

While Sonoma County has a lower rate of premature deaths than does California as a whole, Mendocino and Lake County have much higher rates of premature deaths than the state's.[122]

Some of these differences reflect the different economic wellbeing of these counties compared to Sonoma County, while others reflect these populations' health and access to healthcare.

Table 68: Selected Health Measures, California, Sonoma County, Mendocino County, and Lake County, 2022

Health Measure	California	Sonoma County	Mendocino County	Lake County
Reporting poor or fair health	18%	16%	20%	22%
Poor physical health days per year	3.7	3.6	4.3	4.6
Poor mental health days per year	3.9	4.1	4.6	4.9
Adult smoking	10%	11%	15%	17%
Excessive drinking	19%	21%	21%	19%
Alcohol-impaired driving deaths	28%	33%	34%	30%
Sexually transmitted infections per 100,000 population	599.1	405.2	471.5	427.1
Mammogram screening	37%	52%	33%	35%
Flu vaccination	43%	55%	30%	30%
Preventable hospital stays per 100,000 Medicare enrollees	3,027	2,466	2,468	3,324
Violent crimes per 100,000 population	421	368	640	535
Injury deaths per 100,000 population	55	60	122	156
Children living in poverty	15%	9%	19%	22%
Children in single-parent households	22%	21%	29%	27%

Source: County Health Rankings, "2022 State Report California 2022: Sonoma (SM)," County Health Rankings & Roadmaps, April 2022, *https://www.countyhealthrankings.org/app/california/2022/compare/snapshot*

[122] County Health Rankings, "California: Compare Counties," April 2022, *https://www.countyhealthrankings.org/app/california/2022/compare/snapshot*.

Child Health and Wellness

IMMUNIZATIONS

Under California law, parents must present proof of immunization for all new student admissions at the kindergarten through 12th grade levels. Students who are unable to receive vaccinations for medical reasons may obtain temporary or permanent exemptions, but California no longer permits religious or "personal belief" exemptions from student vaccination requirements.

In the 2018–19 school year, 91.3 percent of Sonoma County kindergartners had all required immunizations,123 up from 90.9 percent the year before. School district data for February 2019 shows that more than 95 percent of kindergartners in the Cloverdale Unified School District and 100 percent of kindergartners in Geyserville Unified had complete immunizations.124 (More recent school district data is not yet available.)

NUTRITION

Responses to the California Health Interview Survey (CHIS) suggest that the nutrition of Sonoma County children under age 12 has been somewhat better than their peers statewide:

- Only 30.3 percent of Sonoma County children reported drinking sugar-sweetened beverages in the previous day, compared to 40.4 percent of kids under 12 statewide.[125]
- Children in Sonoma County are less likely than their peers statewide to have eaten fast food in the past week (60.1 percent versus 72.1 percent).
- Among those who had fast food, 17.4 percent of Sonoma County children had fast food more than one in a week, compared to 39.8 percent of children statewide.
- Similarly, 44.5 percent of Sonoma County children under age 12 report eating five or more servings of fresh fruits and vegetables on a day, compared to 29.2 percent statewide.

[123] California Dept. of Public Health, Immunization Branch, 2018–2019 Kindergarten Immunization Assessment – Executive Summary, 2019, as cited on kidsdata.org, a program of Population Reference Bureau.

[124] California Dept. of Public Health, Immunization Branch, Kindergarten Data and Reports, June 2019, as cited on kidsdata.org.

[125] California Health Interview Survey (CHIS), UCLA Institute for Health Policy Research, 2015–2016 data. Retrieved from AskCHIS, *https://ask.chis.ucla.edu/ask/*.

PHYSICAL ACTIVITY

Only 51.0 percent of Sonoma County children aged 5–11 get an hour of physical activity at least three days a week, compared to 67.5 percent of kids in the same age range statewide.[126]

Children in families earning less than 200 percent of the federal poverty level are less likely to have regular physical activity. Only 32.2 percent of Sonoma County's low-income children aged 5–11 exercise for an hour three or more days a week, compared to 62.6 percent of low-income children 5–11 statewide.

This suggests that low-income children in Sonoma County have fewer opportunities to exercise or engage in active play outside of physical education classes at school.

FITNESS

Only 21.6 percent of Sonoma County 5th graders pass all six of the fitness criteria in the state's standardized physical fitness testing program,[127] compared to 23.1 percent of 5th graders statewide.

More female 5th graders pass these physical tests than do male 5th graders, both statewide and in Sonoma County, although all figures are still poor:

- In Sonoma County, 23.1 percent of female 5th graders passed all six tests, compared to 20.1 percent of male 5th graders.
- Statewide, 24.4 percent of female 5th graders passed all six tests, compared to only 21.6 percent of male 5th grades.

OVERWEIGHT OR OBESITY

In 2019, 41.3 percent of Sonoma County 5th graders were overweight or obese, almost equal to the 41.3 percent of 5th graders statewide who were overweight or obese that year.

[126] California Health Interview Survey (CHIS), UCLA Institute for Health Policy Research, 2014–2016 data. Retrieved from AskCHIS, *https://ask.chis.ucla.edu/ask/*.

[127] The program's six fitness criteria are: (1) aerobic capacity, (2) abdominal strength and endurance, (3) upper strength and endurance, (4) body composition, (5) trunk extensor strength and flexibility, and (6) flexibility.

Both the state and Sonoma County percentages were above the figures reported in the 2016 California Health Interview Survey, which indicated that 40.7 percent of Sonoma County and California 5th graders were overweight for their age.

In Sonoma County, 37.4 percent of female 5th graders and 44.9 percent of male 5th graders were overweight, compared to 37.3 percent of female 5th graders and 45.0 percent of male 5th graders statewide.

In 2019, 46.8 percent of 5th graders in the Cloverdale Unified School District were overweight or obese (44.2 percent of 5th grade girls and 48.5 percent of 5th grade boys). These figures remain above the countywide and statewide averages, but represent an improvement overall from 2018, when 48.6 percent of 5th graders (56.6 percent of boys and 41.1 percent of girls) were overweight or obese.

CHILDREN'S ORAL HEALTH

Sonoma County children aged 2–11 are substantially less likely than all California children 2–11 to have had a dental visit in the past six months (66.0 percent versus 78.3 percent).

Furthermore, 16.4 percent of Sonoma County children aged 2–11 have never seen a dentist, compared to 8.4 percent of children in this age range statewide.[128]

Linguistic barriers are a limiting factor in accessing dental care. Research conducted by UCLA Center for Health Policy Research on behalf of the California Health Care Foundation reveals that the problem of finding a suitable dental provider is compounded for Hispanic patients by a shortage of Spanish-speaking dentists.[129] Linguistically isolated parents (who in Sonoma County are predominantly Spanish speakers) are less likely than are English-fluent parents to take their children for regular dental visits.

For the past decade, all of Sonoma County's community health centers have attempted to improve dental access in their service areas. In Sonoma County, seven CHC organizations, including Alexander Valley Healthcare, have expanded their number of dental operatories, often with financial assistance of First 5 Sonoma County Commission.

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[128] California Health Interview Survey (CHIS), UCLA Center for Health Policy Research), 2018 data. Retrieved from AskCHIS, *https://ask.chis.ucla.edu/ask/*.

[129] Naderah Pourat, *Snapshot: Haves and Have-Nots: A Look at Children's Use of Dental Care in California* (Oakland, Calif.: California Health Care Foundation, Feb. 2008), *https://www.chcf.org/publication/haves-and-have-nots-a-look-at-childrens-use-of-dental-care-in-california/*.

These expansions were inspired by several earlier studies of oral health needs. For example, in 2009 and 2014, Sonoma County's Department of Health Services conducted Smile Survey screening programs to assess oral health problems.

The most recent published survey, conducted in 2014, included oral health screenings of 1,582 kindergartners and 3rd graders, conducted at 15 randomly selected grade schools. That screening program revealed that dental neglect was still a major problem in Sonoma County:

- 51 percent of children screened in 2014 had a history of tooth decay (46 percent of kindergartners and 56 percent of 3rd graders).
- 18 percent had untreated tooth decay (19.5 percent of kindergartners and 15.5 percent of 3rd graders).
- More than 4 percent of children screened were judged to be **in need of urgent dental care**, indicated by the presence of abscesses, inflammation, and pain.
- More than half (56 percent) of the children screened in 2014 had never received any kind of dental sealants.

The county screenings also documented serious health disparities by race and income. Hispanic children in Sonoma County were significantly more likely than white non-Hispanic children to:

- Have experienced tooth decay (64 percent versus 34 percent)
- Have untreated tooth decay (21.5 percent versus 11.0 percent)
- Likely need urgent dental care (6.2 percent versus 2.5 percent).

Schools with higher percentages of children enrolled in the federal Free and Reduced-Price Lunch Program (FRLP) were more likely to evidence tooth decay and/or untreated decay, as illustrated in the following table.

Table 69: Sonoma County Schoolchildren with Tooth Decay History or Untreated Decay by School's Level of Free or Reduced-Price Lunch Program (FRLP) Enrollment, Percentages, 2014

Percentage of Students Enrolled in FRLP	% of Students with History of Tooth Decay	% of Students with Untreated Tooth Decay
Less than 25%	32.8%	10.5%
25–49%	39.4%	11.4%
50–74%	54.5%	22.3%
Over 75%	68.1%	22.8%

Source: Sonoma County Dept. of Health Services, *Sonoma County 2014 Smile Survey*, Nov. 14, 2014

(In Cloverdale Unified School District, 56.7 percent of all students were eligible for free or reduced-price school meals in the 2020–2021 school year.[130])

The placement of sealants on molar surfaces and professional application of topical fluoride (usually at six-month intervals) are evidenced-based practice, and are among the most effective procedures available to prevent tooth decay in children.[131] The Smile Survey results indicate that the percentage of students who had received such sealants increased from 17 percent in 2009 to 44 percent in 2014. However, those results may have overstated the actual gains, since the study counted any child who had had sealant on at least one molar tooth as having received recent sealants.

Of those Sonoma County children, 40.1 percent experienced known barriers to healthcare use, such as lack of a regular physician or lack of insurance. The percentage of Sonoma County families that reported experiencing barriers to care was the highest of any county in the state; the comparable statewide figure was 22.7 percent.

CHILDHOOD ASTHMA

According to California Health Interview Survey data, 10.5 percent of Sonoma County children under age 17 have been diagnosed with asthma, compared to 13.3 percent statewide.[132]

However, 21.3 percent of Sonoma County low-income children under 17 have had an asthma diagnosis, much higher than the state average of 12.3 percent for low-income children.

STUDENTS WITH SPECIAL EDUCATIONAL NEEDS

Sonoma County has a higher rate of children receiving special educational assistance due to special health needs or disabilities than do either California or the United States as a whole.

Sonoma County's overall rate of 152.3 per 1,000 students is well above the U.S. rate of 143.8 per 1,000 students and California's rate of 130.3 per 1,000 students. Sonoma County's overall

[130] California Dept. of Education, Free or Reduced-Price Meal (Student Poverty) Data; National Center for Education Statistics, Digest of Education Statistics (Jul. 2021), as cited on kidsdata.org, a program of Population Reference Bureau.

[131] See for example American Dental Association Council on Scientific Affairs, "Professionally applied topical fluoride: evidenced-based clinical recommendations," *Journal of the American Dental Association* 2006;137(8):1151–1159, doi:10.14219/jada.archive.2006.0356, and Wafa Kashbour et al, "Pit and fissure sealants versus fluoride varnishes for preventing dental decay in children and adolescents," *Cochrane Database of Systematic Reviews* 2020;11:CD003067, doi:10.1002/14651858.CD003067.pub5.

[132] California Health Interview Survey (CHIS), UCLA Center for Healthcare Policy Research, 2017, 2018, 2019, and 2020 pooled data. Retrieved from AskCHIS, https://ask.chis.ucla.edu/ask/.

rate is also higher than those of neighboring Lake and Mendocino Counties. Learning disabilities and speech and language impairments account for most of this higher overall rate.

Table 70: Incidence of Special Education Disabilities Among Students by Disability Type, Rate per 1,000 Students, 2020

Special Health Need	United States	California	Sonoma County	Mendocino County	Lake County
Autism	15.9	20.3	17.2	15.8	17.5
Emotional disturbance	7.2	4.1	9.4	9.0	7.1
Hard of hearing or deaf	1.4	2.2	3.1	1.7	S
Intellectual disability	8.7	6.9	6.9	7.6	8.6
Learning disability	47.5	48.4	63.3	55.4	47.5
Orthopedic impairment	0.7	1.4	2.9	2.1	S
Speech or language Impairment	27.1	27.1	32.0	27.6	26.8
Traumatic brain injury	0.5	0.2	S	S	S
Visual impairment	0.5	0.5	0.6	S	S
Multiple disabilities	2.6	1.3	S	S	S
Other health impairment	21.6	17.8	16.7	14.5	109.0
Total	**143.8**	**130.3**	**152.3**	**138.3**	**122.6**

Source: California Dept. of Education, DataQuest & Special Education Division custom tabulation, National Center for Education Statistics, *Digest of Education Statistics*, Jan. 2021, as cited on kidsdata.org. "S" means the data was suppressed for privacy reasons because of small sample size; "N/A" means the data was unavailable.

Adolescent Health and Wellness

IMMUNIZATION

In addition to the vaccination requirements for younger children, California requires that each student entering 7th grade demonstrate that they have received one dose of tetanus, diphtheria, pertussis (Tdap) vaccine, and two doses of varicella (chickenpox) vaccine. As with other required school vaccinations, medical exemptions are permitted, but religious/personal belief exemptions were eliminated in 2016.

In Sonoma County, 98.2 percent of students entering 7th grade meet these requirements.[133] Local school district data is not yet available.

[133] California Dept. of Public Health, Immunization Branch, *2017–2018 7th Grade Immunization Assessment – Executive Summary*, 2018, retrieved from *https://eziz.org/assets/docs/shotsforschool/2017-18CA7thGradeAssessmentSummary.pdf.*

NUTRITION

Like their peers statewide, many Sonoma County teens go without breakfast. Furthermore, the percentage who go without breakfast climbs as teens get older:

- 31.2 percent of Sonoma County 7th graders skip breakfast, compared to 33.6 percent of 7th graders statewide.
- 37.9 percent of Sonoma County 9th graders skip breakfast, compared to 39.9 percent of 9th graders statewide.
- 41.6 percent of Sonoma County 11th graders skip breakfast, compared to 41.7 percent of 11th graders statewide.

The 2019 AVH Community Needs Assessment reported that the percentage of teens in the Cloverdale Unified School District who skip breakfast was greater than the county and state averages. In the most recent available data,[134] that was no longer true for Cloverdale 7th graders, 33.8 percent of whom reported skipping breakfast — nearly the same as their peers statewide. This is a substantial drop from the 44.6 percent figure reported in the previous needs assessment.

However, 58.3 percent of Cloverdale 11th graders reported skipping breakfast, a major increase from the 46.3 percent figure reported for Cloverdale 11th graders in the previous needs assessment, and significantly above both Sonoma County the state as a whole. (Responses from Cloverdale's 9th graders were not reported in the most recent available data cycle.)

Overall, Sonoma County teens aged 13–18 eat better than do peers statewide. Thirty-one percent of all Sonoma County teens and 43.9 percent of low-income teens report eating five servings or more of fruits and vegetables a day, compared to 24.3 percent of all teens and 19.6 percent of low-income teens statewide.

About half (50.9 percent) of Sonoma County teens report eating fast food in the past week, compared to 79.9 of teens 13–18 statewide. Two-thirds of Sonoma County adolescents (66.6 percent) report not having drunk soda or other sugar-sweetened drinks in the previous day, compared to 61.2 percent of adolescents statewide.

[134] California Health Interview Survey (CHIS), UCLA Center for Health Policy Research, 2014–2017 pooled data. Retrieved from AskCHIS, *https://ask.chis.ucla.edu/ask/*.

PHYSICAL ACTIVITY

Sonoma County adolescents are less physically active than are adolescents statewide.[135] Only 37.8 percent of Sonoma County teens get an hour or more of physical activity four or more days a week, compared to 45 percent of teens statewide.

For adolescents whose family income is below 200 percent of the federal poverty level, the gap is much larger. Only 34.8 percent of low-income Sonoma County teens are active four or more days a week, compared to 57.8 percent of low-income teens statewide.

FITNESS

In the 2018–2019 school year, only 22.6 percent of Sonoma County 7th graders passed all six of California's standardized physical fitness tests, down from 29.1 percent in the 2013–2014 school year and 25.9 percent in the 2016–2017 year. Only 28.0 percent of Sonoma County 9th graders passed all six tests in 2018–2019, down from 37.4 percent in the 2013–2014 school year and 33.0 percent in 2017–2018.

The pass rate for California 7th graders fell from 30.1 percent in 2017–2018 to 28.7 percent in 2018–2019, while the pass rate for California 9th graders fell from 34.1 percent to 33.0 percent.

Over the same period, Cloverdale Unified School District saw an increase in the number of 7th graders passing all six tests, from 26.1 percent to 34.5 percent, but a major drop in 9th graders' pass rates: from 57.9 percent in 2017–2018 to 40.0 percent in 2018–2019. However, that was still better than the pass rate statewide or in Sonoma County as a whole.

Table 71: Pass Rates for California's Standardized Physical Fitness Tests (All Six Tests) by Grade Level, California, Sonoma County, and Cloverdale Unified School District, 2018–2019 School Year

Grade Level	California	Sonoma County	Cloverdale Unified
7th grade	28.2%	22.6%	34.5%
9th grade	33.0%	28.0%	40.0%

Source: California Dept. of Education, Physical Fitness Testing Research Files, Jan. 2020, as cited on kidsdata.org

Statewide and in Sonoma County, female 7th graders are slightly more likely to pass all six tests than are male students. By 9th grade, slightly more male students past all six tests than do female students.

[135] Ibid.

Table 72: Pass Rates for California's Standardized Physical Fitness Tests (All Six Tests) by Grade Level and Gender, California, Sonoma County, and Cloverdale Unified School District, 2018–2019 School Year

Grade Level	California, Female	California, Male	Sonoma County, Female	Sonoma County, Male	Cloverdale Unified, Female	Cloverdale Unified, Male
7th grade	28.7%	27.8%	23.5%	21.8%	39.2%	S
9th grade	32.4%	33.6%	27.8%	28.2%	S	43.5%

Source: California Dept. of Education, Physical Fitness Testing Research Files, Jan. 2020, as cited on kidsdata.org.
"S" means the data was suppressed for privacy reasons because of small sample size.

OVERWEIGHT AND OBESITY

In the 2018–2019 school year, 40.0 percent of California 7th graders were overweight or obese by BMI (body mass index), as were 37.8 percent of California 9th graders. In Sonoma County, 37.5 percent of 7th graders and 38.7 percent of 9th graders were overweight or obese.[136]

Table 73: Overweight and Obesity by Grade Level and Gender, California, Sonoma County, and Cloverdale Unified School District, 2018–2019 School Year

Grade Level	California, Female	California, Male	Sonoma County, Female	Sonoma County, Male	Cloverdale Unified, Female	Cloverdale Unified, Male
7th grade	37.7%	42.1%	34.5%	40.4%	39.2%	39.0%
9th grade	36.3%	39.2%	38.6%	38.8%	36.7%	41.3%

Source: California Dept. of Education, Physical Fitness Testing Research Files, Jan. 2020, as cited on kidsdata.org

In the Cloverdale Unified School District, 39.1 percent of 7th graders in the 2018–2019 school year were overweight or obese, including 39.0 percent of 7th grade boys and 39.2 percent of 7th grade girls. In that same year, 38.9 percent of district 9th graders were reported as overweight or obese, including 41.3 percent of boys and 36.7 percent of girls.[137]

STRESS AND VIOLENCE

Bullying and Harassment

Bullying and harassment are common among adolescents, both in Sonoma County and the state as a whole.

[136] California Dept. of Education, Physical Fitness Testing Research Files, Jan. 2020, as cited on kidsdata.org.

[137] Ibid.

According to California Healthy Kids Survey (CHKS) data for the 2017–2019 period:[138]

- Statewide, 36.0 percent of 7th graders reported being bullied or harassed in the past year, along with 29.9 percent of 9th graders.
- In Sonoma County, 33.7 percent of 7th graders and 34.1 percent of 9th graders reported having been bullied or harassed in the past year.
- By the 11th grade, the rates of bullying declined, to 26.6 percent statewide and 26.2 percent in Sonoma County.
- In the Cloverdale Unified School District, 41.2 percent of 7th grade students and 21.7 percent of 11th graders reported having been bullied or harassed in the past year.

Respondents report that gender, race/ethnicity or national origin, religion, disability, sexual orientation, and education level of parents are all common bases for harassment in school.

Statewide, countywide, and in the Cloverdale Unified School District, female students in each grade level are more likely to be bullied than are male students in the same grades. For example, in Cloverdale, more than half of all female 7the graders report bullying and harassment, compared to less than one-quarter of male students.

By 11th grade, a smaller percentage of Cloverdale students, both male and female, report bullying and harassment than do 11th graders in Sonoma County or 11th graders of either gender statewide.

Table 74: Students Experiencing Bullying and Harassment by Grade Level and Gender, California, Sonoma County, and Cloverfield Unified School District, Percentages, 2017–2019

Grade Level	California, Female	California, Male	Sonoma County, Female	Sonoma County, Male	Cloverdale Unified, Female	Cloverdale Unified, Male
7th grade	38.5%	32.6%	37.6%	29.9%	55.6%	29.3%
9th grade	34.5%	25.8%	38.7%	27.4%	N/A	N/A
11th grade	31.2%	23.0%	29.9%	22.3%	19.4%	24.1%

Source: WestEd, California Healthy Kids Survey (CHKS) & Biennial State CHKS, California Dept. of Education (Aug. 2020), as cited on kidsdata.org. “N/A” means data was unavailable.

[138] WestEd, California Healthy Kids Survey (CHKS) & Biennial State CHKS, California Dept. of Education (Aug. 2020), as cited on kidsdata.org.

Cyberbullying

Statewide, online "cyberbullying" is also a common form of harassment: 26.7 percent of 7th graders, 23.9 percent of 9th graders, and 22.1 percent of 11th graders report experiencing cyberbullying in the past year. Female students are significantly more likely to be targets of cyberbullying than are male student of the same grade level.

Table 75: Students Experiencing Cyberbullying by Grade Level and Gender, California, Sonoma County, and Cloverfield Unified School District, Percentages, 2017–2019

Grade Level	California, Female	California, Male	Sonoma County, Female	Sonoma County, Male	Cloverdale Unified, Female	Cloverdale Unified, Male
7th grade	32.6%	20.4%	30.3%	19.5%	48.6%	18.6%
9th grade	30.5%	18.1%	31.0%	17.1%	N/A	N/A
11th grade	28.4%	16.2%	31.0%	15.5%	33.3%	21.4%

Source: WestEd, California Healthy Kids Survey (CHKS) & Biennial State CHKS, California Dept. of Education (Aug. 2020), as cited on kidsdata.org. "N/A" means the data was unavailable.

A higher proportion of 11th grade students in Cloverdale Unified School District report experiencing cyberbullying than do their peers statewide or in Sonoma County as a whole.

Physical Fights at School

Physical fights at school are also a problem for adolescents in Sonoma County. Typically, the frequency of fights declines as students mature; fewer 11th graders report physical fights than do 7th graders.

Both male and female students report being in fights in all grades. However, more male students have physical fights than do female students at all grade levels.

At the state and county levels, the percentages of students who reported having been in fights at school in the 2013–2015 period were substantially lower than the previous 2011–2013 report across grade levels and genders.

In the 2017–2019 reporting period, this downward trend continued at both the statewide and Sonoma County levels. (Cloverdale Unified School District 9th grade data was not available for the 2017–2019 period.)

Table 76: Teens Who Have Been in One or More Physical Fights at School in the Past Year by Grade Level and Gender, California, Sonoma County, and Cloverfield Unified School District, Percentages, 2011–2013

Grade Level	California, Female	California, Male	Sonoma County, Female	Sonoma County, Male	Cloverdale Unified, Female	Cloverdale Unified, Male
7th grade	14.4%	19.6%	10.3%	23.0%	22.0%	38.2%
9th grade	13.1%	20.9%	12.3%	21.8%	5.0%	20.8%
11th grade	7.9%	16.4%	7.8%	15.6%	22.0%	16.7%

Source: WestEd, California Healthy Kids Survey (CHKS) & Biennial State CHKS, California Dept. of Education (Aug. 2020), as cited on kidsdata.org

Table 77: Teens Who Have Been in One or More Physical Fights at School in the Past Year by Grade Level and Gender, California, Sonoma County, and Cloverfield Unified School District, Percentages, 2013–2015

Grade Level	California, Female	California, Male	Sonoma County, Female	Sonoma County, Male	Cloverdale Unified, Female	Cloverdale Unified, Male
7th grade	10.6%	22.7%	8.8%	19.8%	6.2%	35.0%
9th grade	9.4%	16.6%	10.3%	15.9%	6.1%	20.0%
11th grade	6.9%	12.3%	7.5%	12.2%	3.2%	12.1%

Source: WestEd, California Healthy Kids Survey (CHKS) & Biennial State CHKS, California Dept. of Education (Aug. 2020), as cited on kidsdata.org

Table 78: Teens Who Have Been in One or More Physical Fights at School in the Past Year by Grade Level and Gender, California, Sonoma County, and Cloverfield Unified School District, Percentages, 2017–2019

Grade Level	California, Female	California, Male	Sonoma County, Female	Sonoma County, Male	Cloverdale Unified, Female	Cloverdale Unified, Male
7th grade	10.3%	22.8%	7.3%	17.3%	2.8%	3.3%
9th grade	7.4%	13.6%	5.4%	11.2%	N/A	N/A
11th grade	4.4%	9.4%	4.4%	7.3%	6.7%	6.9%

Source: WestEd, California Healthy Kids Survey (CHKS) & Biennial State CHKS, California Dept. of Education (Aug. 2020), as cited on kidsdata.org. "N/A" means the data was unavailable.

Gang Involvement

In 2017–2019, approximately one in 25 California teens reported gang membership: 4.0 percent of 7th graders, 4.0 percent of 9th graders, and 4.1 percent of 11th graders.

Sonoma County teens' involvement in gangs is similar: 4.2 percent of 7th graders, 4.1 percent of 9th graders, and 4.6 percent of 11th graders. As at the state level, teen boys in Sonoma County are more likely to report gang involvement than are teen girls of the same grade level.

In the Cloverdale Unified School District, male 11th graders report lower levels of gang membership than do 11th grade boys county-wide, but a greater percentage of 11th grade girls report gang membership than do female 11th graders in Sonoma County as a whole.

Table 79: Teens Who Report Gang Membership by Grade Level and Gender, California, Sonoma County, and Cloverdale Unified School District, Percentages, 2017–2019

Grade Level	California, Female	California, Male	Sonoma County, Female	Sonoma County, Male	Cloverdale Unified, Female	Cloverdale Unified, Male
7th grade	3.6%	4.6%	4.0%	4.3%	0.0%	4.8%
9th grade	3.3%	5.1%	2.6%	5.5%	N/A	N/A
11th grade	2.1%	6.0%	2.3%	6.8%	3.2%	3.4%

Source: WestEd, California Healthy Kids Survey (CHKS) & Biennial State CHKS, California Dept. of Education (Aug. 2020), as cited on kidsdata.org. "N/A" means data was unavailable.

OTHER ADOLESCENT HEALTH ISSUES

Depression

A substantial percentage of teens at all grade levels in Sonoma County and statewide report feelings of depression. Female students in every grade level are more likely to report depression-relate feelings than are their male peers, both statewide and in Sonoma County.

In the Cloverdale Unified School District, depression-related feelings among 7th graders are substantially more common than at either the county or state levels for both male students and female students. By 11th grade, the percentage of female Cloverdale students who report feelings of depression has risen to 65.5 percent. This is far above the 48.1 percent of Sonoma County 11th grade girls and the 45.1 percent of female 11th graders statewide who report feelings of depression. In contrast, 24.1 percent of Cloverdale's male 11th graders report depression-related feelings, well below both the averages for Sonoma County (27.8 percent) and the state (27.4 percent).

Table 80: Students Who Report Depression-Related Feelings by Grade Level and Gender, California, Sonoma County, and Cloverdale Unified School District, Percentages, 2017–2019

Grade Level	California, Female	California, Male	Sonoma County, Female	Sonoma County, Male	Cloverdale Unified, Female	Cloverdale Unified, Male
7th grade	37.0%	22.8%	32.6%	16.8%	44.4%	23.3%
9th grade	41.4%	23.0%	42.6%	22.1%	N/A	N/A
11th grade	45.1%	27.4%	49.0%	27.8%	65.5%	24.1%

Source: WestEd, California Healthy Kids Survey (CHKS) & Biennial State CHKS, California Dept. of Education (Aug. 2020), as cited on kidsdata.org. "N/A" means data was unavailable.

Suicidal Ideation and Self-Inflicted Injury

Adolescents of high school age are at risk of suicide for a variety of reasons, including depression, family problems, and having been victims of abuse. The California Healthy Kids Survey (CHKS) asks generalized questions about whether students have considered committing suicide. (The survey does not ask whether students have actually attempted suicide.)

In general, the percentages of Sonoma County students who report suicidal ideas are near or slightly higher than the statewide averages for both genders. Comparing 2013–2015 data with data for 2017–2019 indicates declines in suicidal ideation both statewide and in Sonoma County. However, male students in Sonoma County were more likely to report suicidal ideation in the 2017–2019 data cycle than in 2013–2015.

Table 81: Students Who Report Suicidal Ideation by Grade Level and Gender, California, Sonoma County, and Cloverdale Unified School District, Percentages, 2013–2015

Grade Level	California, Female	California, Male	Sonoma County, Female	Sonoma County, Male	Cloverdale Unified, Female	Cloverdale Unified, Male
9th grade	26.5%	11.0%	27.0%	10.7%	34.0%	4.9%
11th grade	22.4%	13.3%	24.2%	12.1%	12.9%	17.6%

Source: WestEd, California Healthy Kids Survey (CHKS) & Biennial State CHKS, California Dept. of Education (Aug. 2020), as cited on kidsdata.org

Table 82: Students Who Report Suicidal Ideation by Grade Level and Gender, California, Sonoma County, and Cloverdale Unified School District, 2017–2019

Grade Level	California, Female	California, Male	Sonoma County, Female	Sonoma County, Male	Cloverdale Unified, Female	Cloverdale Unified, Male
9th grade	21.1%	11.2%	23.7%	13.1%	N/A	N/A
11th grade	20.2%	12.7%	20.4%	14.3%	20.0%	13.8%

Source: WestEd, California Healthy Kids Survey (CHKS) & Biennial State CHKS, California Dept. of Education (Aug. 2020), as cited on kidsdata.org. "N/A" means the data was unavailable.

In 2015, Sonoma County had a higher rate of hospitalizations for self-inflicted injuries among young people aged 5–20 years than did California as a whole: The Sonoma County hospitalization rate was 44.6 per 100,000 population, compared to 36.5 per 100,000 statewide. However, both rates were still below the United State rate of 62.7 per 100,000.[139]

[139] Source: California Dept. of Public Health, Epi-Center (Feb. 2020), California Dept. of Finance Population Estimates and Projections (Jan. 2020), and CDC Web-based Injury Statistics Query and Reporting System

"Connectedness" as a Mitigating Factor

The California Healthy Kids Survey (CHKS) identifies students' sense of "connectedness" with school or community as an important mitigating factor for mental and behavioral health issues, including feelings of depression, suicide ideation, abuse of alcohol or other drugs, and other unhealthy behaviors.

The CHKS asks about connectedness in multiple ways. For example, students are asked whether there are adults who care for them, if adults have high expectations of them, and whether their school has resources to help students with problems.

Students are also asked to rate their own level of connection to their school on a scale of "Low," "Medium," or "High." Those self-reported connectedness levels are then cross-tabulated with a host of other responses from the same students.

The results reveal a strong correlation between high levels of connectedness and lower incidence of being harassed, engaging in physical fights, depression, suicidal thoughts, and alcohol or other drug abuse.

Generally, Sonoma County students rate their connections to their school lower than do students in the same grade statewide, with fewer students reporting "high" connection and more reporting "medium" or "low" connection. However, there is significant fluctuation from one year to the next, making it more difficult to identify specific trends.

Table 83: Student-Reported Levels of Connectedness by Grade Level, California (CA), Sonoma County (SM), and Cloverdale Unified School District (CUSD), Percentages, 2017–2019

Grade Level	CA, Low	CA, Med.	CA, High	SM, Low	SM, Med.	SM, High	CUSD, Low	CUSD, Med.	CUSD, High
7th grade	9.3%	39.6%	51.2%	7.3%	36.1%	56.6%	6.3%	30.0%	63.7%
9th grade	10.8%	44.4%	44.8%	9.9%	45.5%	44.6%	N/A	N/A	N/A
11th grade	12.6%	47.2%	40.2%	11.2%	48.8%	40.1%	20.0%	48.3%	31.7%

Source: WestEd, California Healthy Kids Survey (CHKS) & Biennial State CHKS, California Dept. of Education (Aug. 2020), as cited on kidsdata.org. "N/A" means the data was unavailable.

Generally, students who identify as LGBTQ or who describe themselves as "not sure" rate their connectedness lower than do students who self-describe as straight and cisgender. (Most data

(WISQARS) (May 2020), as reported by kidsdata.org. The data represents the number of hospital discharges for nonfatal self-inflicted injuries per 100,000 children and youth aged 5–20, not the number of children hospitalized.

for LGBTQ students in the small Cloverdale Unified School District is suppressed for privacy reasons and is not available for analysis.)

Connectedness also varies significantly by race/ethnicity. White students, Hispanic students, African-American students, and Asian students in Sonoma County generally rate their school connectedness higher than do other groups, and higher than the same groups statewide.

Table 84: Student-Reported Levels of Connectedness by Race/Ethnicity, California (CA), Sonoma County (SM), and Cloverdale Unified School District (CUSD), Percentages, 2017–2019

Race/Ethnicity	CA, Low	CA, Med.	CA, High	SM, Low	SM, Med.	SM, High	CUSD, Low	CUSD, Med.	CUSD, High
African-American	16.3%	47.0%	36.8%	11.2%	47.9%	40.8%	N/A	N/A	N/A
American Indian/ Alaskan Native	14.4%	43.2%	42.4%	11.8%	28.4%	59.8%	S	S	S
Asian	7.5%	41.9%	50.6%	5.9%	38.6%	55.5%	N/A	N/A	N/A
Hispanic/Latino	11.6%	45.8%	42.6%	5.9%	38.6%	55.5%	15.4%	39.7%	44.9%
Native Hawaiian/Pacific Islander	12.0%	44.6%	43.4%	7.4%	46.9%	45.7%	S	S	S
White, non-Hispanic	8.9%	39.3%	51.9%	7.1%	39.4%	53.5%	8.3%	35.4%	56.3%
Multiracial	12.9%	42.9%	44.2%	13.2%	46.2%	40.6%	S	S	S

Source: WestEd, California Healthy Kids Survey (CHKS) & Biennial State CHKS, California Dept. of Education (Aug. 2020), as cited on kidsdata.org. “S” means the data was suppressed for privacy reasons because of small sample size; “N/A” means the data was unavailable.

In the Cloverdale Unified School District, self-reported school connectedness has a fairly clear correlation with health status and prevalence of emotional distress and high-risk behaviors.

Table 85: Students’ Health Status/Risk Behavior by Levels of Connectedness, Cloverdale Unified School District, Percentages, 2017–2019

Behaviors Self-Reported by Students	Low	Medium	High
Experiencing bullying/harassment	35.3%	47.2%	21.4%
Being in physical fight(s) at school	12.5%	15.7%	12.9%
Gang membership	11.8%	1.9%	1.5%
Depression-related feelings	56.3%	51.0%	24.3%
Suicidal ideation	33.3%	17.9%	5.3%
Smoking tobacco cigarettes in the past month	12.5%	7.5%	0.0%
Using e-cigarettes in the past month	23.5%	24.5%	8.6%
Using marijuana in the past month	64.9%	37.7%	11.4%
Alcohol/drug use in past month	47.1%	30.2%	12.9%
Binge drinking in the past month	23.5%	17.3%	2.9%

Source: WestEd, California Healthy Kids Survey (CHKS) & Biennial State CHKS, California Dept. of Education (Aug. 2020), as cited on kidsdata.org

Adult Health and Wellness

DIET AND NUTRITION

According to California Health Interview Survey (CHIS) data,[140] adults in Sonoma County are less likely than adults statewide to have eaten fast food in the past week (58.4 percent versus 65.1 percent). Sonoma County adults were also less likely to have eaten fast food more than once in the past week than are adults statewide (24.9 percent versus 40.9 percent).

However, the percentage who have eaten fast food is greater in two key groups: Latinos and respondents of all ethnicities with incomes below 200 percent of the federal poverty level.

- 73.9 percent of Sonoma County Latino adults and 73.7 percent of Latino adults statewide had eaten fast food in the past week.
- 32.9 percent of Sonoma County Latino adults and 40.4 percent of Latino adults statewide had eaten fast food more than once in the past week.
- 68.8 percent of Sonoma County low-income adults had fast food in the past week, as did 68.0 percent of low-income adults statewide.
- 31.8 percent of Sonoma County low-income adults had fast food more than once in the past week, less than the 44.4 percent of low-income adults statewide who ate fast food more than once a week.

Soda consumption by adults has fallen both statewide and in Sonoma County adults. Asked the average number of sodas they drank in a week, 60.4 percent of adults statewide and 65.5 percent of Sonoma County adults report they consumed no soda.

The percentage of adults who abstained from soda is lower when only low-income or Latino adults are reporting:

- 46.8 percent of Latino adults of all incomes statewide reported no soda consumption, as did 45.5 percent of Sonoma County Latino adults.

[140] California Health Interview Survey, UCLA Institute for Health Policy Research, 2016 data. Retrieved from AskCHIS *https://ask.chis.ucla.edu/ask/*. This question was not asked in more recent years, as part of CHIS's question rotation.

- 50.9 percent among low-income Sonoma County adults of all ethnicities and 48.8 percent of low-income adults statewide reported no soda consumption.

Adult women statewide and in Sonoma County were more likely than adult men to report consuming no soda. This was also true of low-income adults and Latino adults of all incomes.

PHYSICAL ACTIVITY

According to California Health Interview Survey (CHIS) data,[141] adults in Sonoma County get 20 minutes of physical activity at least as frequently as do adults statewide.

Both statewide and in Sonoma County, adult women are somewhat more physically active than are adult men. In Sonoma County, 76.9 percent of adult women get 20 minutes of activity three or more days a week, compared to 73.1 percent of adult men. Similarly, statewide, 72.0 percent of adult women get 20 minutes or more of physical activity at least three days a week, compared to 71.0 percent of adult men.

Table 86: Number of Days a Week with 20 Minutes or More of Physical Activity, California and Sonoma County Adults by Gender, 2017–2018

Days of Physical Activity per Week	California Adults, Male	California Adults, Female	Sonoma County Adults, Male	Sonoma County Adults, Female
None	16.2%	14.0%	11.3%	10.3%
1 day	5.1%	4.5%	7.1%	4.8%
2 days	9.2%	9.5%	8.5%	8.0%
3 days	13.8%	14.2%	17.3%	20.2%
4 days	11.4%	11.3%	13.9%	9.1%
5 days	14.4%	41.2%	19.2%	14.9%
6 days	6.7%	5.0%	6.8%	5.1%
7 days	23.2%	27.3%	15.3%	27.6%
3 days or more	**70.0%**	**72.0%**	**73.1%**	**76.9%**

Source: California Health Interview Survey (CHIS), UCLA Center for Health Policy Research, 2017–2018 pooled data

About 43.4 percent of Sonoma County adults 18–59 report walking regularly for transportation, fun, or exercise, compared to 38.5 percent of California adults 18–59.

However, only 35.3 percent of Sonoma County's low-income adults walk regularly, compared to 36.7 percent of low-income adults 18–59 statewide.

[141] California Health Interview Survey (CHIS), UCLA Center for Health Policy Research, 2015, 2016, and 2017 pooled data. Retrieved from AskCHIS https://ask.chis.ucla.edu/ask/.

The level of physical activity reported by adults 60 and older is actually higher, perhaps indicating that older adults may have more time to exercise and/or have less disposable income for other forms of transportation.

Approximately 36.3 percent of Sonoma County adults over age 60 report walking regularly, compared to a statewide average of 37.8 percent for that age group. The figures for low-income residents are nearly identical: 36.3 percent of Sonoma County adults over 60 and 37.9 percent of adults over 60 statewide walk regularly.

OVERWEIGHT AND OBESITY

More than three-fifths (60.7 percent) of all Sonoma County adults are overweight or obese, although this is below the state average of 61.9 percent.

However, the county's Latino residents have a significantly lower rate of overweight or obesity than do Latinos statewide. According to 2019–2020 California Health Interview Survey (CHIS) data, 53.5 percent of the county's adult Latino residents are overweight or obese. The state average is 72.9 percent of all Latino adults.

Table 87: Weight Ranges, California and Sonoma County Adults 19 and Older, All Adults and Latino Adults, Percentages, 2019–2020

Weight Range by BMI	California, All Adults	California, Latino Adults	Sonoma County, All Adults	Sonoma County, Latino Adults
Underweight (BMI ≤ 18.49%)	2.1%	1.5%	3.1%	*
Normal weight (BMI = 18.50–24.99%)	36.0%	28.2%	36.1%	38.4%
Overweight (BMI = 25–29.99%)	33.5%	33.2%	36.5%	35.6%
Overweight/obese (BMI ≥ 30%)	28.4%	36.0%	24.2%	17.9%
Total overweight/obese	**61.9%**	**72.2%**	**60.7%**	**53.5%**

Source: California Health Interview Survey (CHIS), UCLA Center for Health Policy Research, 2019–2020 pooled data.
* CHIS did not publish data for this measure, possibly due to inadequate sample size.

Sonoma County adult women are also less likely to be overweight or obese than are adult women statewide: 54.6 percent compared to 57.2 percent.

However, the same is not true of Sonoma County's adult men, who are somewhat more likely to be overweight or obese (69.4 percent) than are adult men statewide (66.8 percent).

Adult women in both Sonoma County and statewide have lower rates of overweight than do adult men, although nearly the same percentages of men and women are obese in both populations.

Table 88: Weight Ranges, California and Sonoma County Adults 19 and Older by Gender, Percentages, 2019–2020

Weight Range by BMI	California Adults, Male	California Adults, Female	Sonoma County Adults, Male	Sonoma County Adults, Female
Underweight (BMI ≤ 18.49%)	1.5%	2.7%	5.4%	1.4%
Normal weight (BMI = 18.50–24.99%)	31.7%	40.1%	25.2%	44.1%
Overweight (BMI = 25–29.99%)	38.4%	28.8%	45.1%	30.6%
Overweight/obese (BMI ≥ 30%)	28.4%	28.4%	24.3%	24.0%
Total overweight/obese	**66.8%**	**57.2%**	**69.4%**	**54.6%**

Source: California Health Interview Survey (CHIS), UCLA Center for Health Policy Research, 2019–2020 pooled data

DISABILITIES

According to U.S. Census Bureau 2016–2020 American Community Survey data, 8.7 percent of residents of the United States and of California have a disability, while 11.7 percent of Sonoma County residents and 12.8 percent of AVH's Service Areas have disabilities.

Currently, the Census Bureau reports on six disability types:

- **Hearing difficulty:** Being deaf or having serious difficulty hearing
- **Vision difficulty**: Being blind or having serious difficulty seeing, even when wearing glasses
- **Cognitive difficulty**: Having difficulty remembering, concentrating, or making decisions because of a physical, mental, or emotional problem
- **Ambulatory difficulty**: Having serious difficulty walking or climbing stairs
- **Self-care difficulty**: Having difficulty bathing or dressing
- **Independent living difficulty:** Having difficulty doing errands such as visiting a doctor's office or shopping alone because of a physical, mental, or emotional problem.

Respondents with any one of these six disability types are considered to have a disability.

Table 89: Population with Disabilities by Type of Disability and Geographical Area, Sonoma County and AVH Service Area ZCTAs, Percentages

Disability Type	Sonoma County	Cloverdale ZCTA 95425	Geyserville ZCTA 95441	Hopland ZCTA 95449
Hearing disability	3.6%	4.9%	3.2%	4.0%
Vision disability	1.9%	1.7%	1.8%	3.7%
Cognitive disability	4.5%	4.2%	3.3%	5.2%
Ambulatory disability	5.8%	7.4%	6.4%	7.6%
Self-care disability	2.5%	2.5%	2.5%	2.9%
Independent living disability	5.4%	7.2%	3.8%	6.2%

Source: U.S. Census Bureau, American Community Survey 5-year estimates, 2016–2020

Table 90: Population with Disabilities by Geographical Area, Sonoma County and AVH Service Area ZCTAs, Totals and Percentages

Geographic Area	Total Pop.	Any Disability, Pop.	Any Disability, %	One Type, Pop.	One Type, %	Two or More Types, Pop.	Two or More Types, %
Sonoma County	492,417	57,586	11.7%	31,551	6.4%	26,035	5.3%
Cloverdale ZCTA 95425	11,096	1,457	13.1%	749	6.8%	708	6.4%
Geyserville ZCTA 95441	1,696	174	10.3%	73	4.3%	101	6.0%
Hopland ZCTA 95449	1,393	183	13.1%	97	7.0%	86	6.2%

Source: U.S. Census Bureau, American Community Survey 5-year estimates, 2016–2020

Table 91: Population with Disabilities by Age Group and Geographical Area, Sonoma County and AVH Service Area ZCTAs, Percentages

Age Group and Disabilities	Sonoma County	Cloverdale ZCTA 95425	Geyserville ZCTA 95441	Hopland ZCTA 95449
Under 18, any disability	3.5%	4.3%	8.5%	13.2%
Under 18, one type of disability	2.5%	3.6%	1.5%	12.8%
Under 18, two or more types of disabilities	1.0%	0.8%	7.0%	0.4%
18–64, any disability	9.0%	10.0%	3.6%	9.4%
18–64, one type of disability	5.2%	3.8%	0.6%	4.2%
18–64, two or more types of disabilities	3.7%	6.3%	3.0%	5.2%
65 and older, any disability	28.6%	30.5%	27.6%	28.4%
65 and older, one type of disability	14.1%	18.4%	15.2%	12.2%
65 and older, two or more types of disabilities	14.3%	12.1%	12.5%	16.2%

Source: U.S. Census Bureau, American Community Survey 5-year estimates, 2016–2020

ADULT EMOTIONAL HEALTH

According to the most recent available four-year pooled data from the California Health Interview Survey,[142] an average of 25.8 percent of Sonoma County adults report needing help in the past year for emotional/mental health problems or for alcohol/other drug use issues, compared to 20.5 percent of adult respondents statewide.

Both in Sonoma County and statewide, the percentages of adult women who report needing help is much greater than the number of men who report needing help, although the gap between men and women was wider in Sonoma County than statewide (11.8 percentage points versus 4.5 percentage points).

Table 92: Adults Who Reported Needing Help for Mental/Emotional or Alcohol/Drug Use Problems in the Past Year by Gender and Geographic Area, California and Sonoma County, Percentages, 2017–2020

Gender	California	Sonoma County
Female	23.7%	30.6%
Male	17.2%	18.8%
Total	**20.3%**	**25.8%**

Source: California Health Interview Survey (CHIS), UCLA Center for Health Policy Research, 2017–2020 pooled data

Both statewide and in Sonoma County, adult women 18–65 who reported needing help for mental/emotional or alcohol/drug use problems were significantly more likely than adult men 18–65 to have received that help. Among adults 65 and older, men were somewhat more likely than women to have received the help they sought, although county data for older adults is incomplete, possibly to preserve respondent confidentiality with a small sample size.

Table 93: Adults Who Sought Help for Mental/Emotional or Alcohol/Drug Use Problems in the Past Year by Gender, California and Sonoma County, Percentages, 2017

Age and Treatment Status	California Adults, Female	California Adults, Male	California Adults, All	Sonoma County Adults, Female	Sonoma County Adults, Male	Sonoma County Adults, All
Received treatment	57.3%	49.9%	54.4%	69.9%	72.9%	70.3%
Did NOT receive treatment	42.7%	50.1%	45.5%	30.1%*	N/A	29.7%

Source: California Health Interview Survey (CHIS), UCLA Center for Health Policy Research, 2017. "N/A" indicates that data is unavailable. Numbers marked with * are extrapolations.

[142] California Health Interview Survey (CHIS), UCLA Center for Health Policy Research, 2017–2020 pooled data. Retrieved from AskCHIS, *https://ask.chis.ucla.edu/ask/*.

Health Behaviors

TOBACCO USE

Historically, a greater proportion of Sonoma County teens and adults smoked tobacco than did their peers statewide, but in recent years, the county's level of tobacco smoking has come closer to parity with the state average. Both are on the decline: According to the 2022 County Health Rankings, 11 percent of Sonoma County adults and 10 percent of adults statewide are current smokers. According to the California Health Interview Survey (CHIS),[143] Sonoma County has a higher proportion of former smokers than does the state as a whole: 30.0 percent of the county's adult residents are former smokers, compared to 20.8 percent of all California adults.

However, progress in reducing smoking has not been the same across all populations. For example, 18.9 percent of Sonoma County residents with incomes below 200 percent of poverty are current smokers, compared to 12.0 percent of adults below 200 percent of poverty statewide. At both the state and national levels, tobacco smoking also remains more prevalent among LGBTQ individuals as well as among low-income individuals.[144]

As smoking has declined, tobacco use has shifted from cigarettes to "vaping": the use of electronic nicotine delivery systems (ENDS) such as e-cigarettes or vape pens, which vaporize a liquid containing nicotine. Because there is no combustion, ENDS are considered smokeless,[145] and they largely avoid the telltale smell, smoker's breath, and nicotine stains associated with cigarette or cigar smoking. Manufacturers have also offered e-liquids in a variety of flavors, from bubblegum and mint to fruit flavors, which helped to make these products attractive to users who find conventional cigarettes distasteful — including young people.

Many ENDS users assume that the lack of smoke makes vaping safer than smoking regular cigarettes. However, nicotine is highly addictive and poses health risks regardless of how it is

[143] California Health Interview Survey, UCLA Center for Health Policy Research, 2017, 2019, 2019, and 2020 pooled data. Retrieved from AskCHIS https://ask.chis.ucla.edu/ask/.

[144] Ibid and Monica E. Cornelius et al, "Tobacco Product Use Among Adults—United States, 2020," *Morbidity and Mortality Weekly Report* 2022;71(11):397–405. doi:10.15585/mmwr.mm7111a1

[145] Richard J. O'Connor, "Non-cigarette tobacco products: What have we learnt and where are we headed?" *Tobacco Control* 2012;21:181–190. doi:10.1136/tobaccocontrol-2011-050281

ingested, something that is particularly concerning given the high concentrations of nicotine in many current e-liquids.[146]

Also, the health impact of vaporizing and regularly inhaling other e-liquid ingredients, such as food-grade artificial flavorings, remains a poorly understood area of potential public health concern. For example, the CDC found strong links between a 2019–20 outbreak of vaping product use-associated lung injury and the presence of vitamin E acetate in vaping e-liquids.[147]

California law defines ENDS as tobacco products, subject to the same regulations and restrictions as other forms of tobacco, but federal efforts to regulate ENDS products (using authority granted the FDA under the Family Smoking Prevention and Tobacco Control Act of 2009) have been protracted and contentious, during which time manufacturers like JUUL Labs, the current market leader in vaping products, have continued to flourish.[148]

Recent regulatory and enforcement actions have focused on deterring marketing and sales of ENDS products to teens, who had found e-cigarettes easier to obtain than traditional tobacco products,[149] and easier to conceal from parents and teachers. Federal law now prohibits the sale of e-cigarettes and other tobacco products to anyone under the age of 21, and in 2020, the FDA announced that it would prioritize enforcing prohibitions on most of the cartridge-based flavored e-liquids that have helped make vaping appealing to kids.[150]

Survey data suggests that vaping among teens has declined since 2018, but it remains by far the most common form of tobacco use among adolescents.

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[146] JUUL Labs popularized e-liquids with nicotine concentrations as high as 5.0 percent (5.9 percent by volume), and other manufacturers soon followed suit. See Richard K. Jackler and Divya Ramamurthi, “Nicotine arms race: JUUL and the high-nicotine market," *Tobacco Control* 2019;28:623-628. doi:10.1136/tobaccocontrol-2018-054796

[147] Centers for Disease Control and Prevention, “Outbreak of Lung Injury Associated with the use of E-Cigarette, or Vaping, Products,” Feb. 25, 2020, *https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html*.

[148] In June 2022, the FDA issued market denial orders for all current JUUL products, but temporarily suspended those orders less than two weeks later after the U.S. Court of Appeals for the D.C. Circuit granted the company’s motion for an administrative stay pending court review. See the FDA press release dated June 23, 2022: *https://www.fda.gov/news-events/press-announcements/fda-denies-authorization-market-juul-products*.

[149] Richard A. Miech et al, *Monitoring the Future 2017: Vol. 1: Secondary School Students* (Ann Arbor: Institute for Social Research, the University of Michigan, 2018), as reported by the National Institute on Drug Abuse, June 1, 2018, *https://www.drugabuse.gov/news-events/news-releases/2018/06/full-survey-annual-teen-drug-use-now-available-additional-data*.

[150] See the FDA press release dated Jan. 2, 2020: *https://www.fda.gov/news-events/press-announcements/fda-finalizes-enforcement-policy-unauthorized-flavored-cartridge-based-e-cigarettes-appeal-children*.

In the 2021 National Youth Tobacco Survey (NYTS), only 8.1 percent of U.S. middle school and high school students reported ever having smoked tobacco cigarettes (and just 1.5 percent reported having done so in the past 30 days), but 19.4 percent reported having tried e-cigarettes. Vaping is more common among high school students than among middle-schoolers: In the 2021 NYTS, 28.9 percent of U.S. high school students reported having ever used e-cigarettes, with 11.3 percent reporting having used e-cigarettes in the past 30 days. By comparison, only 7.3 percent of middle-school students said they had ever used e-cigarettes and only 2.8 percent reported having done so in the past 30 days.[151]

In the 2020 California Student Tobacco Survey (CSTS 2020), 8.2 percent of California high school students reported current vape use, down from 10.5 percent in the 2018 survey. During the same period, current cigarette smoking declined from 2.0 percent to 1.2 percent. However, both vaping and cigarette smoking remained more common among LGBTQ students and in rural areas (like large portions of the AVH service area), where 10.7 percent of students reported current vape use and 1.7 percent were current cigarette smokers in 2020.[152]

Vaping has been less popular with adults than with teens, although given the prevalence of vaping among teenagers, that may change over time. In the 2020 National Health Interview Survey, only 3.7 percent of U.S. adults reported currently using e-cigarettes, but e-cigarette use was more common among young adults: 9.4 percent of adults 18–24 reported being current e-cigarette users, compared to only 2.2 percent of adults 45–64.[153]

In the most recent available CHIS data, only 4.3 percent of California adults (5.7 percent of men and 3.1 percent of women) reported using e-cigarettes in the past 30 days, and 11.9 percent of adults already describe themselves as former users of e-cigarettes.[154] In Sonoma County, the

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[151] Andrea S. Gentzke et al, "Tobacco Product Use and Associated Factors Among Middle and High School Students — United States, 2021," *Morbidity and Mortality Weekly Report* 2022;71(5):1–29. doi:10.15585/mmwr.ss7105a1. The authors note that due to pandemic restrictions, the methodology of the 2021 NYTS differed from the two previous years, which may affect the comparability of the data.

[152] Data from California Student Tobacco Survey (CSTS), 2016 to 2020, conducted by the University of California, San Diego Center for Research and Intervention in Tobacco Control, cited in California Dept of Public Health, California Tobacco Control Program, *California Tobacco Facts and Figures 2021*, Nov. 2021, *https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/CTCB/CDPH%20Document%20Library/ResearchandEvaluation/FactsandFigures/CaliforniaTobaccoFactsAndFigures2021-V3A.pdf*. The CSTS data describes LGBTQ students as "sexual and gender minority," abbreviated "SGM."

[153] Monica E. Cornelius et al, "Tobacco Product Use Among Adults—United States, 2020," *Morbidity and Mortality Weekly Report* 2022;71(11):397–405. doi:10.15585/mmwr.mm7111a1

[154] California Health Interview Survey (CHIS), UCLA Institute for Health Policy Research, 2017, 2018, 2019, and 2020 pooled data. Retrieved from AskCHIS, *https://ask.chis.ucla.edu/*.

proportion of adults using e-cigarettes was lower: 3.9 percent (5.8 percent of men and 2.6 percent of women).

In California, 11.8 percent of adults ages 19–24 reported use of e-cigarettes in the past 30 days (14.7 percent of men and 9.2 percent of women). Twenty-four percent of adults in this group were former users of e-cigarettes. In Sonoma County, the percentage of adults age 19–24 who used e-cigarettes in the last 30 days was substantially higher — 29.0 percent (22.2 percent of men and 31.7 percent of women) — but so was the percentage of adults in this age group who were former users: 35.5 percent (33.2 percent of men and 33.7 percent of women).[155]

MARIJUANA USE

California has permitted the medical use of marijuana since 1996. Persons over 18 may legally purchase and use marijuana or cannabis for medicinal purposes with a written recommendation from a physician and a county-issued medical marijuana identification card.

Effective Jan. 1, 2018, Prop. 64 also made it legal for adults 21 or older to purchase, carry, use, grow, and/or process up to 1 ounce (38.5 grams) of marijuana for recreational consumption on private property. (Most state restrictions on tobacco smoking also apply to marijuana smoking.) Beginning Jan. 1, 2024, employers in California will be prohibited (with certain exceptions) from penalizing or discriminating against employees or applicants who use cannabis while "off the job and away from the workplace."[156]

In the most recent California Health Interview Survey (CHIS) data,[157] approximately 32.2 percent of California adults (34.0 percent of adult men and 30.4 percent of adult women) reported having used marijuana within the past month. The figures were slightly higher in Sonoma County: 34.4 percent of all Sonoma County adults (36.7 percent of adult men and 31.2 percent of adult women) reported using marijuana in the past 30 days. Additionally, 12.1 percent of adult Sonoma County residents who did not report using marijuana within the past month reported that they had done so within the past year.

Although it remains illegal in California for individuals under the age of 18 to buy, possess, or consume cannabis products (even for medicinal purposes), marijuana use is common among

[155] Ibid.

[156] California Government Code § 12954, as created in by AB 2188 (2022).

[157] California Health Interview Survey (CHIS), UCLA Institute for Health Policy Research, 2017, 2018, 2019, and 2020 pooled data. Retrieved from AskCHIS, *https://ask.chis.ucla.edu/*.

California teenagers. In the most recent available CHIS data,[158] 54.2 percent of California teens (49.9 percent of girls and 58.3 percent of boys) reported using marijuana at least once within the past month.

Not enough 2018 and later data is yet available to fully assess whether the legalization of adult recreational marijuana use has significantly altered patterns of youth marijuana use in California. One recent study concluded that there may be some post-legalization increases in marijuana use among California teenagers, albeit not across all demographic groups.[159]

Alcohol & Binge Drinking

Historically, Sonoma County has had a high level of binge drinking among teens and adults. Available data indicates that this pattern continues. According to County Health Rankings, 24 percent of Sonoma County adults report binge drinking one or more times a month, compared to 18 percent of adults statewide.[160]

Preliminary data suggests that the COVID-19 pandemic and its associated lockdown and shelter-in-place orders significantly increased adult alcohol use. A study using data from the RAND Corporation American Life Panel found that nationwide frequency of alcohol consumption in 2020 increased 14 percent over the same period in 2019.[161] The nationwide frequency of heavy drinking among women increased 41 percent during the same period.

Among teens, data from the California Healthy Kids Survey (CHKS)[162] indicates that the percentage of Sonoma County 7th graders who drink alcohol is somewhat above the average for 7th graders statewide: 6.1 percent of girls and 4.2 percent of boys. Statewide, 4.8 percent of 7th grade girls and 3.6 percent of 7th grade boys are drinking alcohol.

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[158] Ibid.

[159] Mallie J. Paschall et al, "Recreational Marijuana Legalization and Use Among California Adolescents: Findings From a Statewide Survey," *Journal of Studies on Alcohol and Drugs* 2021;82(1):103–111. doi:10.15288/jsad.2021.82.103

[160] County Health Rankings, "2022 State Report California 2022: Sonoma (SM)," County Health Rankings & Roadmaps, April 2022, *https://www.countyhealthrankings.org/app/california/2022/rankings/outcomes/*.

[161] Michael S. Pollard et al, "Changes in Adult Alcohol Use and Consequences During the COVID-19 Pandemic in the US," *JAMA Network Open* 2020;3(9):e2022942. doi:10.1001/jamanetworkopen.2020.22942

[162] WestEd, California Healthy Kids Survey (CHKS) & Biennial State CHKS, California Dept. of Education (Aug. 2020), as cited on kidsdata.org.

By 11th grade, Sonoma County teens are more likely than peers statewide to drink alcohol:[163]

- 27.6 percent of Sonoma County's 11th grade girls report drinking alcohol in the past month, compared to 17.2 percent of 11th grade girls statewide.
- 26.1 percent of Sonoma County's 11th grade boys report drinking alcohol in the past month, compared to 13.7 percent of 11th grade boys statewide.

The percentage of Sonoma County teenagers who **binge drink** — which CHKS defines as four or more alcoholic drinks in a row — is also higher than the statewide average. By 11th grade, 16.3 percent of female students and 16.7 percent of male students in Sonoma County report binge drinking at least once in the past month, compared to 8.2 percent of 11th grade girls and 9.9 percent of 11th grade boys statewide.

These figures are troubling from a public health perspective because individuals who start drinking before age 15 are four times as likely to develop alcohol problems later in life than are people who start drinking after age 21.[164]

Equally troubling is that in the most recent available California Healthy Kids Survey (CHKS) data, 10.7 percent of Sonoma County 9th grade girls and 7.3 percent of Sonoma County 9th grade boys reported drinking and driving or having ridden with someone who had been drinking or using drugs. These percentages rose by 11th grade to 22.9 percent of female students and 23.0 percent of male students in Sonoma County; statewide figures for 11th graders were 13.1 percent and 12.7 percent respectively.[165]

A 2021 study in *JAMA Pediatrics* found no statistically significant changes in alcohol use by Northern California high school students during the initial pandemic stay-at-home orders in spring 2020.[166]

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[163] Ibid.

[164] Community Prevention Initiative and the Maternal, Child & Adolescent Health Advisory Board, in collaboration with Sonoma County Dept. of Health Services, "Underage Drinking in Sonoma County 2013," based on data from, *inter alia*, the National Institute on Alcohol Abuse and Alcoholism, "Spotlight on…Underage Drinking," *Newsbrief* No. 22, 2004, and Linda Patia Spear, "The adolescent brain and age-related behavioral manifestations," *Neuroscience & Biobehavioral Reviews* 2000;9(4):111-114, doi:10.1111/1467-8721.00072.

[165] WestEd, California Healthy Kids Survey (CHKS) & Biennial State CHKS, California Dept. of Education (Aug. 2020), as cited on kidsdata.org.

[166] Benjamin W. Chaffee et al, "Adolescents' Substance Use and Physical Activity Before and During the COVID-19 Pandemic," *JAMA Pediatrics* 2021;175(7):715–722. doi:10.1001/jamapediatrics.2021.0541

Chronic Conditions

ASTHMA

According to California Health Interview Survey (CHIS) data,[167] 17.9 percent of Sonoma County residents of all ages have been diagnosed with asthma, compared to 15.4 percent of California residents of all ages.

Only 10.5 percent of Sonoma County children under age 17 have ever been diagnosed with asthma, compared to 13.3 percent statewide. However, 21.3 percent of Sonoma County's low-income children under 17 have had an asthma diagnosis, a substantially higher percentage than the state average of 12.3 percent for low-income children.[168]

In the 2020–2021 study period, AVH had 372 unduplicated patients with an asthma diagnosis, only 80 of whom were under age 18.

HEART DISEASE

According to California Health Interview Survey (CHIS) data,[169] 6.8 percent of California adults report having ever been told they had heart disease. The percentage was significantly lower for Latino adults (4.2 percent) and significantly higher for low-income adults regardless of ethnicity (7.3 percent).

In Sonoma County, 9.7 percent of all county adults reported having been told they had heart disease. The figures were 13.0 percent for Latino adults and 17.9 percent for low-income adults regardless of ethnicity.

In 2020–2021, AVH had 327 unduplicated patients with diagnosed heart conditions.

[167] California Health Interview Survey (CHIS), UCLA Institute for Health Policy Research, 2017, 2018, 2019, and 2020 pooled data. Retrieved from AskCHIS, *https://ask.chis.ucla.edu/*.

[168] Ibid.

[169] Ibid.

DIABETES

California Health Interview Survey (CHIS) data[170] indicates that statewide, 10.5 percent of all California's adults report that they have been told they have diabetes. In Sonoma County, the figure is 11.3 percent of all adults.

Latino adults are more likely to report having been told they have diabetes: 12.0 percent of all California Latino adults statewide and 16.2 percent of Latino adults in Sonoma County say they have been diagnosed with diabetes. Low-income residents of all ethnicities also appear to be at greater risk. Statewide, 14.0 percent of adults report been told they have diabetes, as do 16.4 percent of Sonoma County low-income adults.

An even larger percentage of California adults report that they have been told they have "pre-diabetes" or "borderline diabetes": 15.2 percent of low-income adults and 15.4 percent of Latino adults statewide. In Sonoma County, 13.2 percent of low-income adults and 18.2 percent of Latino adults of all incomes report being told they have borderline or pre-diabetes.

In 2020–2021, AVH had 447 unduplicated patients with a diagnosis of diabetes mellites.

Despite the higher reported incidence of diabetes and pre-diabetes in Sonoma County, the county scores better that the state on preventable hospitalizations for diabetes, as measured by Diabetes Prevention Quality Indicator (PQI) Measures,[171] suggesting that Sonoma County primary care practices are more effectively managing diabetes cases.

Table 94: Preventive Hospitalizations for Diabetes Complications, Risk-Adjusted Rates per 100,000 Population, California and Sonoma County, 2020

PQI #	Description of Complications	California	Sonoma County
PQI #1	Short-term complications (ketoacidosis, hyperosmolarity, or coma)	61.2	47.4
PQI #3	Long-term complications (renal, eye, neurological, circulatory, or other complications)	85.6	79.5
PQI #14	Uncontrolled diabetes (without mention of short-term or long-term complications)	25.8	20.4
PQI #16	Lower-extremity amputation (except toe)	30.6	26.5
PQI #93	Any of the above conditions	186.6	157.4

[170] Ibid.

[171] The Prevention Quality Indicators (PQIs), developed by the federal Agency for Healthcare Research and Quality (AHRQ), are a set of measures derived from hospital inpatient discharge data to identify "ambulatory care sensitive conditions." These are conditions that good outpatient care can potentially prevent or manage without hospitalization. High PQI scores are considered "flags" for poor primary care system performance. Low scores are considered to reflect more effective primary care.

Source: 2020 data from the California Dept. of Health Care Access and Information (HCAi), https://hcai.ca.gov/visualizations/preventable-hospitalizations-for-diabetes/. Note: The risk-adjusted rates are adjusted for age, sex, and poverty, and are calculated per 100,000 state or county population. Because the PQI software calculates rates regardless of the number of cases recorded, rates based on only a few cases should be interpreted with caution.

HYPERTENSION

California Health Interview Survey (CHIS) data[172] indicates that 29.1 percent of all California adults have or have been told they have high blood pressure or hypertension. In Sonoma County, 30.5 percent of all adults have been told they have hypertension.

Statewide, fewer Latino adults reported having been told they had high blood pressure: 25.4 percent. However, in Sonoma County, 31.5 percent Latino adults reported having been told they had high blood pressure.

In Sonoma County, 35.8 percent of low-income adults of all ethnicities reported having been told they had high blood pressure, compared to 31.9 percent of low-income adults statewide.

In 2020–2021, AVH had 972 unduplicated patients with a diagnosis of hypertension.

TUBERCULOSIS

Tuberculosis is a continuing health problem in the United States, with 7,860 new cases reported in 2021. Between 2020 and 2021, the rate of TB cases per 100,000 persons increased 9.4 percent, from 2.2 per 100,000 to 2.4 per 100,000 in 2021. However, that is still lower that the 2019 national rate of 2.7 per 100,000.[173]

The decrease in cases between 2019 and 2020 may be the result of a mixture of factors, including delayed TB testing or missed TB diagnoses because of disrupted healthcare access during the early months of the COVID-19 pandemic. It may also reflect an actual decline in TB cases due to reduced transmission resulting from COVID-19 mitigation efforts (such as social

[172] California Health Interview Survey (CHIS), UCLA Institute for Health Policy Research, 2016,2017, and 2018 pooled data. Retrieved from AskCHIS, https://ask.chis.ucla.edu/. This question was not asked in more recent years, as part of CHIS's question rotation.

[173] Thomas D. Filardo et al, "Tuberculosis — United States, 2021," *Morbidity and Mortality Weekly Report*, 2022 (71);441–446. doi:10.15585/mmwr.mm7112a1

distancing and mask use) and fewer new arrivals from countries with higher TB incidence than the United States.[174]

The rise in TB cases in 2021 may reflect a return to more frequent public contacts (and thus more frequent transmission), an increase in new arrivals from other countries, a delayed recognition of existing disease, or some combination of all of these factors.

California has accounted for more than one in five U.S. cases of tuberculosis: 23.7 percent In 2019 (2,111 of 8,900 cases), 23.8 percent in 2020 (1,706 of 7,173 cases), and 22.3 percent in 2021 (1,750 of 7,860 cases).

The CDC and the California Department of Public Health attribute California's higher incidence of tuberculosis to the state's larger population of Asian, Black, and Hispanic immigrants, who have historically had higher rates of diagnosed TB. In 2020, 84 percent of California TB cases were among persons born outside the U.S. More than half (52 percent) occurred among Asian residents, 41 percent among Hispanic residents.[175]

Sonoma County's TB rate has fluctuated, but has remained consistently lower than California's.

Table 95: Tuberculosis Cases per 100,000 Population, California and Sonoma County, 2018–2021

Time Period	California	Sonoma County
2018	5.3	2.2
2019	5.3	1.2
2020	4.3	2.4
2021	4.4	2.3

Source: California Dept. of Public Health, Tuberculosis Control Branch, Tuberculosis Case Numbers and Rates, California and Local Jurisdictions, 2018–2022, *https://data.chhs.ca.gov/dataset/tuberculosis-cases-and-rates*

As of 2021, Sonoma County had not had any cases of multidrug resistant (MDR) tuberculosis, although there have been a few cases in neighboring Mendocino County.

In addition to active TB cases, more than 2 million Californians (approximately 6 percent of the state's population) have latent tuberculosis infections (LBTI), which can progress to active TB if

[174] Ibid and Masahiro Narita et al, "Delayed tuberculosis diagnoses during the coronavirus disease 2019 (COVID-19) pandemic in 2020—King County, Washington," *Clinical Infectious Diseases* 2021;73(Suppl 1):S74–S76. doi:10.1093/cid/ciab387

[175] California Dept. of Public Health, Tuberculosis Control Branch, *TB in California: 2020 Snapshot*, Feb. 1, 2021, *https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/TBCB-TB-Snapshot-2020.pdf*.

not treated. The vast majority (87 percent) of TB cases are attributed to LBTI cases that progressed to active status.[176]

SEXUALLY TRANSMITTED INFECTIONS (STIS)

In recent years, California has been experiencing a rapid rise in cases of the three most common sexually transmitted illnesses: gonorrhea, chlamydia, and primary and secondary syphilis.

In Sonoma County, the case rates for all three types of STIs grew as well, sometimes at a faster rate than the statewide averages through the 2016–2018 data reporting period.

Table 96: Chlamydia Case Rates per 100,000 Population, California and Sonoma County, 2013–2015, 2016–2018, and 2018–2020

Time Period	California	Sonoma County
2013–2015	457.4	332.1
2016–2018	546.1	410.8
2018–2020	542.7	376.3

Source: *California Health Status Profiles 2022*, California Dept. of Public Health and California Conference of Local Health Officers, April 2022. No breakout by patient gender was available.

Table 97: Gonorrhea Case Rates per 100,000 Population, California and Sonoma County, 2013–2015, 2016–2018, and 2018–2020

Time Period	California, Female	California, Male	Sonoma County, Female	Sonoma County, Male
2013–2015	194.4	306.2	109.8	150.4
2016–2018	282.9	501.4	184.0	294.1
2018–2020	325.7	530.0	218.8	350.4

Source: *California Health Status Profiles 2022*, California Dept. of Public Health and California Conference of Local Health Officers, April 2022

Table 98: Primary and Secondary Syphilis Case Rates per 100,000 Population, California and Sonoma County, 2013–2015, 2016–2018, and 2018–2020

Time Period	California, Female	California, Male	Sonoma County, Female	Sonoma County, Male
2013–2015	1.7	19.6	N/A	12.8
2016–2018	4.7	29.4	4.9	25.4
2018–2020	7.4	31.8	8.9	31.1

Source: *California Health Status Profiles 2022*, California Dept. of Public Health and California Conference of Local Health Officers, April 2022

[176] Ibid.

Congenital gonorrhea also became more common statewide, with the incidence rising from 20.8 cases per 100,000 population in the period 2013–2015 to 58.7 cases per 100,000 population in the period 2016–2018 — a worrying 182 percent increase over three years.

Since 2012, there have been 103 stillbirths or neonatal deaths in California attributed to congenital syphilis.[177] There were too few cases in Sonoma County for the California Department of Public Health to report a rate.

SEXUALLY TRANSMITTED INFECTIONS AMONG ADOLESCENTS

As reported in the 2019 AVH community needs assessment, data from the California Health Interview Survey indicates that Sonoma County teens are more likely to have had sexual intercourse than are teens statewide.

- Statewide, 12.5 percent of adolescents aged 15–19 have had sex, which is lower than the 18.3 percent reported in the 2019 needs assessment.
- In Sonoma County, approximately 38.3 percent of 15–19-year-olds have had sex, a sharp increase from the 26.3 percent reported in the 2019 needs assessment.

Many sexually active adolescents are exposed to sexually transmitted diseases. The two most common sexually transmitted infections (STIs) are chlamydia and gonorrhea.[178] Adolescents tend to have higher rates of sexually transmitted infection than do older adults.

While both chlamydia and gonorrhea are generally treatable after detection, antibiotic-resistant strains have appeared, and having an STI can sometimes increase susceptibility to future infection or other illnesses.[179]

Both female and male Sonoma County adolescents have higher rates of chlamydia infection than do teens in California as a whole. However, both California and Sonoma County rates are

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[177] California Dept. of Public Health, Sexually Transmitted Diseases Control Branch, https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/STD.aspx.

[178] Data source: California Dept. of Public Health, Sexually Transmitted Diseases Data; California Dept. of Finance, Race/Ethnic Population with Age and Sex Detail, 2000–2010, 2010–2060; Centers for Disease Control and Prevention, Sexually Transmitted Diseases Data & Statistics; and U.S. Census Bureau, Population Estimates Program, *Estimates of the Resident Population by Sex & Age for the United States, 2000–2010, 2010–2015* (Sep. 2016), as cited on kidsdata.org.

[179] Committee on Adolescence and Society for Adolescent Health and Medicine, "Screening for Nonviral Sexually Transmitted Infections in Adolescents and Young Adults," *Pediatrics* 2014;134(1):e302–11. doi:10.1542/peds.2014-1024

below the national rate of chlamydia cases per 100,000 population. Sonoma County's gonorrhea rate is also significantly below California's, which in turn is below the U.S. rate.

Table 99: Sexually Transmitted Infection Rates per 100,000 Population Among Teens 10–19, United States, California, and Sonoma County, 2018

Infection	United States, Female	United States, Male	California, Female	California, Male	Sonoma County, Female	Sonoma County, Male
Chlamydia	1,709.0	490.0	1,260.9	163.1	1,299.6	287.1
Gonorrhea	286.2	163.9	163.1	103.8	58.1	66.0

Source: California Dept. of Public Health, Sexually Transmitted Diseases Control Branch custom tabulation (Jan. 2020); Centers for Disease Control and Prevention, Sexually Transmitted Disease Surveillance (Oct. 2018); and U.S. Census Bureau population data, as cited on kidsdata.org

The lower infection rates among male adolescents may reflect lower rates of testing rather than fewer cases. Various studies have consistently found that adolescent girls are significantly more likely than adolescent boys to be tested for STIs.

Health Outcomes

In California, as in most of the U.S., mortality data is generally reported on a per-county basis. It therefore presents a county-wide picture of health that does not always reflect the significant disparities that can exist within a single county.

In 2018, the Sonoma County Department of Health Services Assessment & Epidemiology Unit, issued a study examining mortality rates at the subcounty level. This report, *Sonoma County Summary Measures of Health*, presented 2013–2015 age-adjusted mortality data by cause of death, average life expectancy, and years of potential life lost due to premature death for **nine subcounty areas**: **Santa Rosa; Petaluma; Sonoma Valley; Rohnert Park; Sebastopol – West County; Windsor; Healdsburg; Russian River; and Cloverdale and Geyserville**. A second *Summary Measures of Health* report was issued in 2019, updating this data for 2015–2017.[180]

Both *Summary Measures of Health* reports found that these nine subcounty areas had substantial differences in age-adjusted mortality rates, life expectancy, and years of potential life lost, as well as incidence of disability by gender, ethnic, and geography.

[180] Jenny Mercado, Sonoma County Dept. of Health Services, Health, Policy, Planning and Evaluation Unit, *Sonoma County Summary Measures of Health, A Review of Life Expectancy and Premature Death, 2015–2017*, Dec. 2019, *https://sonomacounty.ca.gov/Health/Public-Reports/Summary-Measures-2015-17/*.

The **Cloverdale and Geyserville** area described in *Summary Measures of Health* includes two of the three ZIP Code Tabulation Areas (ZCTAs) included in the AVH service area: ZIP Code 95425 (Cloverdale) and ZIP Code 95441 (Geyserville), which together comprise 76.6 percent of AVH's service population. (The third service area ZCTA, ZIP Code 95449 (Hopland), is in neighboring Mendocino County and outside the scope of these reports.)

The **five leading causes of death** in the Cloverdale and Geyserville area during this period were:

(1) Cancer

(2) Heart disease

(3) Alzheimer's disease

(4) Chronic lower respiratory disease

(5) Stroke

(6) Unintentional injury.

Life Expectancy

The *Summary Measures of Health* reports found that overall (and prior to the pandemic), Sonoma County had a slightly higher life expectancy at birth (81.6 years) than did California as a whole (81.5 years). Both life expectancy figures were higher than the U.S. average of 78.6 years.

Life expectancy at birth was 4 years higher for female Sonoma County residents (83.9 years) than for male residents (79.6 years). However, this gap in life expectancy narrowed past age 65. Average life expectancy at age 65 was 22.1 years for women and 19.8 years for men.

Life expectancy also varied by race/ethnicity. Asians/Pacific Islanders had the highest life expectancy in Sonoma County (88.0 years), followed by Hispanic/Latino residents (86.8 years), African-American/Black residents (82.3 years), and white non-Hispanic residents (81.4 years). American Indians/Alaska natives had the lowest life expectancy (80.8 years).

Table 100: Life Expectancy by Selected Regions and Demographic Groups, Years, 2015–2017

Characteristic	Life Expectancy, Years
Region	
United States	78.6
California	81.5
Sonoma County, all areas and demographics	81.6
Gender	

Characteristic	Life Expectancy, Years
Male	79.6
Female	83.9
Race/Ethnicity	
White, non-Hispanic	81.4
Hispanic/Latino	86.8
African-American/Black	82.3
Asian/Pacific Islander	88.0
American Indian/Alaska Native	80.8
Subcounty Area	
Santa Rosa	80.9
Petaluma	82.1
Sonoma Valley	82.7
Rohnert Park	80.6
Sebastopol – West County	83.7
Windsor	81.6
Healdsburg	84.0
Russian River	82.4
Cloverdale and Geyserville	79.7

Source: Sonoma County Dept. of Health Services, Sonoma County Summary Measures of Health: A Review of Life Expectancy and Premature Death, 2015–2017, Dec. 2019

The **Cloverdale and Geyserville** area had the lowest computed life expectancy at birth of the nine areas: 79.7 years. This was 3.0 years below the county average and 2.9 years below the state average, although still 1.1 years above the U.S. average. The life expectancy of Cloverdale and Geyserville area was also 5.4 years below the life expectancy of the neighboring Healdsburg area, which had the highest life expectancy of the nine subcounty areas: 84.0 years.

Premature Mortality

Another way to measure the health of a given population is premature mortality rates, measured in **years of potential life lost due to death before a particular age.** This metric quantifies the impact of premature death due to illness or injury. For example, if a cancer patient dies at age 43, their years of potential life lost due to death before age 75 (abbreviated YPLL-75) would be 32. YPLL can be calculated for specific causes of death or for all-causes mortality,[181] and is typically measured in terms of years lost per 100,000 population.

In the 2015–2017 period examined by the most recent *Summary Measures of Health* report, Sonoma County's age-adjusted premature mortality rate was 4,473.7 years of potential life lost

[181] For a discussion of the history of this methodology and some issues involved in its application, see the Centers for Disease Control and Prevention, "Premature Mortality in the United States: Public Health Issues in the Use of Years of Potential Life Lost," *Morbidity and Mortality Weekly Report* 1986;35(Suppl 2S);1S–11S, https://www.cdc.gov/mmwr/preview/mmwrhtml/00001773.htm.

before age 75 per 100,000 population. That was lower than California (5,137.8 YPLL-75 per 100,000 population) and the United States (6,728.1 YPLL-75 per 100,000 population) for the same period.

Overall (all-causes) YPLL-75 figures for a particular region are strongly affected by maternal and child health outcomes; for obvious reasons, infant mortality results in more years of life lost than does any other premature death. Generally, Sonoma County has good maternal, newborn, and child health outcomes, which contribute to its lower overall years of potential life lost.

However, Sonoma County's rates of death from cancer (including childhood cancers), accidental/unintentional deaths, drug overdose deaths, and suicides are higher than the state as a whole, which results in more years of potential life lost. The **Cloverdale and Geyserville** subcounty area had the highest number of potential years of life lost of any of the nine subcounty areas: 6,196.5 YPLL-75 per 100,000 population. While this rate was below the YPLL-75 of the United States, it was 120.6 percent above the California rate of 5,137.8 YPLL-75 and 38.5 percent above Sonoma County's rate of 4,473.7 YPLL-75.

Of the nine subcounty areas, Cloverdale and Geyserville had the highest YPLL-75 rates for four leading causes of deaths: **all cancers, heart disease, suicide, and strokes,** and the second highest YPLL-75 rate for **unintentional injuries**.

Table 101: Age-Adjusted Years of Potential Life Lost Under Age 75 (YPLL-75) by Selected Regions and Demographic Groups, 2013–2015

Region	YPLL-75 per 100,000 Population
United States	6,728.1
California	5,137.8
Sonoma County, all areas and demographics	4,473.7
Subcounty Area	
Santa Rosa	4,687.6
Petaluma	3,452.1
Sonoma Valley	4,264.7
Rohnert Park	5,132.7
Sebastopol – West County	3,344.3
Windsor	4,288.2
Healdsburg	4,153.1
Russian River	5,719.5
Cloverdale and Geyserville	6,196.6

Source: Sonoma County Dept. of Health Services, Sonoma County Summary Measures of Health: A Review of Life Expectancy and Premature Death, 2015–2017, Dec. 2019

Maternity Outcomes & Infant Mortality

Overall, Sonoma County has excellent birth outcomes.

California has met the Health People 2020 (HP2020) target of no more than 6.0 infant deaths per 1,000 live births: The state's average's average infant mortality rate for 2017–2019 was 3.9 deaths per 1000 live births, a 13.6 percent improvement on the already low rate of 4.4 infant deaths per live births reported in the 2014–2016 period. This is a remarkable accomplishment for such a large maternal population — 450,000 births a year — with such a diverse population.

Sonoma County's 2017–2019 infant mortality rate was 3.0 deaths per 1,000 live births, better than California's and consistent with the prior three-year period.

As a privacy measure, the California Department of Public Health withholds county-specific data when the number of events falls below certain thresholds, so current infant mortality rates by race/ethnicity are not available for Sonoma County.

The most recent data available indicates that non-Hispanic and Asian/Pacific Islander residents have the lowest infant mortality rates, while Hispanic/Latino residents' infant mortality rate is similar to the state average. However, both statewide and in Sonoma County, Black/African-American residents have had approximately twice the infant mortality rate of all races/ethnicities — 7.6 infant deaths per 1,000 live births — and remain the only racial group whose infant mortality is still above the HP 2020 target.

Table 102: Infant Mortality (Deaths per 1,000 Live Births) by Race/Ethnicity, California (CA) and Sonoma County (SM, 2010–2012, 2014–2016, 2017–2019

Race/Ethnicity	California, 2010–2012	California, 2014–2016	California, 2017–2019	Sonoma County, 2010–2012	Sonoma County, 2014–2016	Sonoma County, 2017–2019
All races/ethnicities	4.8*	4.4**	3.9***	4.7*	3.0**	3.9***
White, non-Hispanic	3.9	3.6	3.0	3.8	N/A	2.3^
Hispanic	4.7	4.4	4.0	4.8	N/A	3.2^
Black/African-American	9.8	9.8	7.6	10.2	N/A	N/A
Asian/Pacific Islander	3.9	3.6	2.6	5.8	N/A	N/A

^ Rate may be unreliable because of small cohort. *Sources: California Dept. of Public Health, "2010–2012 Birth Cohort-Perinatal Outcome Files," as published in *California County Health Status Profiles 2015*, by California Dept. of Public Health and California Conference on Local Health Officers, April 2015. **Source: California Dept. of Public Health, "2014–2016 Birth Cohort-Perinatal Outcome Files," as published in *California County Health Status Profiles 2019*, by California Dept. of Public Health and California Conference on Local Health Officers, April 2019. ***California Dept. of Public Health, Center for Health Statistics and Informatics, Birth Cohort-Perinatal Outcomes Files (static), compiled Nov. 2021, as published in *California County Health Status Profiles 2022*, published by California Dept. of Public Health and California Conference on Local Health Officers, April 4–11, 2022. https://www.cdph.ca.gov/Programs/CHSI/Pages/County-Health-Status-Profiles.aspx. "N/A" means that data was withheld pursuant to the department's Data De-Identification Guidelines.

Both California and Sonoma County meet the HP2020 goal of fewer than 7.8 percent low-birthweight infants.

Only 6.9 percent of all births in the 2015–2017 period were low birthweight (under 2,500 grams). That figure rose to 7.0 percent in 2018–2020, lower than the current national average of 8.2 percent.[182]

Only 6.0 percent of Sonoma County births were low birthweight in the 2019–2020 period, although this was up slightly from 5.8 percent in the 2015–2017 period.

California's birth outcomes are a reflection of good prenatal care: 86.5 percent of California mothers started prenatal care in their first trimester in the period 2018–2020, up from 83.5 percent in 2015–2017. Three-quarters of mothers (76.1 percent) completed an "adequate" or "adequate plus" amount of prenatal care.[183] Additionally, 93.8 percent of mothers began breastfeeding at the start of their postpartum period.

A full 96.7 percent of Sonoma County expectant mothers initiated prenatal care in the first trimester of their pregnancy during the 2018–2020 period, but only 71.9 percent had "adequate" or "adequate plus" prenatal care, down from 78.0 percent in 2015–2017. Additionally, 96.7 percent began breastfeeding during the postpartum period, down slightly from 97.4 percent in the 2015–2017 period.

Statewide, births to teen mothers (aged 13–19) fell from 15.9 per 1,000 live births in 2015–2017 to 11.4 per 1,000 in 2018–2020. Sonoma County teen birth rate fell from an already low 9.3 teen births per 1,000 live births to 7.8 per 1,000 in 2018–2020.

HIGH-RISK MATERNAL POPULATION

Despite these encouraging figures, data from the state's Maternal and Infant Health Assessment (MIHA) Surveys[184] demonstrates that Sonoma County's maternal population

[182] Centers for Disease Control and Prevention, National Center for Health Statistics, "Birthweight and Gestation," *https://www.cdc.gov/nchs/fastats/birthweight.htm*.

[183] The California Department of Public Health uses the Adequacy of Prenatal Care Utilization Index developed by Harvard Medical School pediatrics professor Milton Kotelchuck, Ph.D., MPH, which attempts to characterize prenatal care utilization in two independent dimensions: adequacy of prenatal care initiation and the services received once prenatal care has begun. This includes the number of prenatal care visits and type of services received, based on the recommendations of the American College of Obstetricians and Gynecologists.

[184] California Dept. of Public Health, Maternal and Infant Health Assessment (MIHA) Data and Reports, *https://www.cdph.ca.gov/Programs/CFH/DMCAH/MIHA/Pages/Data-and-Reports.aspx*.

remains at high risk. In the most recent survey period for which data is available (2016–2018):[185]

- 10.9 percent of the county's pregnant residents had a diagnosis of asthma before pregnancy, compared to 8.4 percent of all pregnant Californians during the same period.
- 3.8 percent had a pre-pregnancy diagnosis of diabetes, compared to a statewide average of only 3.0 percent.
- 25.0 percent were aged 35 or older at the time of delivery, compared to 22.7 percent statewide, a key risk factor for maternal mortality.[186]

Obesity is a suspected risk factor in the incidence of diabetes and gestational diabetes. The frequency of gestational diabetes has doubled among pregnant women in Sonoma County over the past decade, rising from 4.6 percent to 9.7 percent of pregnancies.[187] The comparable national average in 2016 was only 6.0 percent.[188]

The 2016–2018 MIHA found:

- 54.2 percent of Sonoma County mothers were either overweight or obese (by BMI) prior to pregnancy, up from 45.7 percent in the 2013–2015 MIHA survey.
- 46.3 percent gained excessive weight during pregnancy, compared to 41.8 percent of mothers statewide.

[185] *MIHA Data Snapshots, California: Health Indicators from the 2016–2018 Maternal and Infant Health Assessment (MIHA) Survey* (Sacramento, Calif.: California Dept. of Public Health, Maternal, Child, and Adolescent Health (MCAH) Division, 2022).

[186] California Dept. of Public Health, California Pregnancy Mortality Surveillance System (CA-PMSS), *California Pregnancy Related Deaths, 2008–2016*, Sep. 2021, https://www.cdph.ca.gov/Programs/CFH/DMCAH/surveillance/CDPH%20Document%20Library/CA-PMSS/CA-PMSS-Surveillance-Report-2008-2016.pdf.

[187] California Dept. of Public Health, Maternal, Child, and Adolescent Health (MCAH) Division, "Sonoma County Maternal Child and Adolescent Health Community Profile 2017–18," retrieved from https://www.cdph.ca.gov/Programs/CFH/DMCAH/LocalMCAH/Pages/County-Profiles.aspx.

[188] Nicholas P. Deputy et al, "Prevalence and Changes in Preexisting Diabetes and Gestational Diabetes Among Women Who Had a Live Birth — United States, 2012–2016," *Morbidity and Mortality Weekly Report* 2018;67(43):1201–1207. doi:10.15585/mmwr.mm6743a2

Inadequate pregnancy weight gain can also contribute to maternal or infant health problems. In the 2016–2018, 16.8 percent of Sonoma County pregnancies had inadequate intrapartum weight gain, up from 14.5 percent in the 2013–2015 period.

MATERNAL USE OF ALCOHOL AND SMOKING

Pregnant Sonoma County residents have higher levels of alcohol use than the state average. During the 2016–2018 MIHA survey period:

- 19.5 percent of pregnant Sonoma County residents reported **binge drinking** during the three months before their pregnancies, compared to 14.5 percent statewide.
- 9.1 percent continued alcohol use during the first and third trimesters of their pregnancies, compared to 7.6 percent statewide.

MIHA data reveals that Sonoma County residents are more likely than pregnant Californians statewide to smoke before, during, and after pregnancy:

- 9.1 percent of pregnant county residents who reported smoking during the three months before becoming pregnant, down from 13.7 percent in 2013–2015. By comparison, 8.6 percent of pregnant California residents smoked in 2016–2018, versus 11.6 percent in 2013–2015.
- 3.1 percent of Sonoma County pregnant women continued to smoke into their third trimesters, compared to 2.5 percent statewide.
- 5.3 percent of Sonoma County's new mothers continued smoking postpartum, as did 4.3 percent of new mothers statewide in 2016–2018.
- 6.3 percent of the county's new mothers and 4.7 percent of new mothers statewide used cannabis during their pregnancies.

ECONOMIC AND FAMILY INSTABILITY

A large portion of Sonoma County's maternal population is at economic risk. During the 2016–2018 MIHA study period:[189]

[189] MIHA Data Snapshots, California: Health Indicators from the 2016–2018 Maternal and Infant Health Assessment (MIHA) Survey.

- 27.2 percent of pregnant Sonoma County residents had incomes below the federal poverty level (FPL), and 52.2 percent were below 200 percent of FPL.
- 11.5 percent of pregnant Sonoma County residents or their partners lost jobs during the pregnancy.
- 9.5 percent had hours or pay cut during the pregnancy.
- 6.7 percent had to move during their pregnancy because of problems paying rent or mortgage, and 2.8 percent experienced homelessness during the pregnancy
- 12.6 percent had not completed high school or a GED.
- Almost half (47.1 percent) qualified for Medi-Cal (California's Medicaid program) during pregnancy, but 24.4 percent were uninsured before becoming pregnant and 15.1 percent reported that they would be uninsured postpartum.

There is also evidence of inadequate family planning:

- 32.3 percent of pregnant Sonoma County residents in 2016–2018 were unmarried.
- 25.0 percent described their current pregnancy as "mistimed or unwanted."
- 11.6 percent reported being "unsure of their pregnancy intentions."

Mortality Rates by Cause of Death

CANCER

Overall cancer mortality rates have fallen in the United States and in California,[190] but cancer remains the state's second leading cause of death. The same is true in Sonoma County, but the percentage of all Sonoma County deaths caused by cancer has fallen from 25.3 percent to 23.6 percent.[191]

[190] National Cancer Institute and CDC, "Quick Profiles: California," *State Cancer Profiles*, June 2021, https://statecancerprofiles.cancer.gov/quick-profiles/index.php?statename=california. This data reveals that over the period 2013–2017, the incidences of 15 types of cancer fell in California, while the incidences of four other types of cancer rose.

[191] *Sonoma County Summary Measures of Health: A Review of Life Expectancy and Premature Death, 2015–2017*.

Sonoma County's crude and age-adjusted mortality rates have remained above the state rates for the four leading types of cancer: colorectal cancer, lung cancer, female breast cancer, and prostate cancer.

Table 103: Cancer Mortality per 100,000 Population, California and Sonoma County, 2018–2020

Cancer Type	California, Crude	California, Age-Adjusted	Sonoma County, Crude	Sonoma County, Age-Adjusted
All cancers	150.3	128.3	194.3	129.8
Colorectal cancer	13.9	11.9	17.7	12.4
Lung cancer	27.0	22.9	37.5	24.2
Female breast cancer	22.8	18.2	26.5	16.2
Prostate cancer	18.8	19.1	23.1	19.9

Source: California Dept. of Public Health, Center for Health Statistics and Informatics, California Comprehensive Master Death Files (static), compiled Oct. 2021, as reported in *California County Health Status Profiles 2022*, published by California Dept. of Public Health and California Conference on Local Health Officers, April 4–11, 2022, retrieved from https://www.cdph.ca.gov/Programs/CHSI/Pages/County-Health-Status-Profiles.aspx

Sonoma County's analysis of mortality rates by subcounty areas in the most recent *Summary Measures of Health* report found that the **Cloverdale and Geyserville** area had an age-adjusted mortality rate for all cancers of 164.5 deaths per 100,000 population in the 2015–2017 period, higher than the Sonoma County rate of 138.2 deaths per 100,0000 population for the same period.[192] (The Healthy People 2020 target is 161.4 deaths per 100,000 for all cancers.)

The higher cancer mortality rates for the AVH service area brings its rates closer to the higher cancer mortality rates of neighboring Mendocino and Lake Counties. The rates of lung cancer for these counties are particularly elevated compared to the state rate.

Table 104: Cancer Mortality per 100,000 Population, Mendocino and Lake Counties, 2018–2020

Cancer Type	Mendocino County, Crude	Mendocino County, Age-Adjusted	Lake County, Crude	Lake County, Age-Adjusted
All cancers	227.7	150.7	285.1	178.4
Colorectal cancer	23.1	16.2	25.0	16.3
Lung cancer	43.9	27.9	70.7	42.0
Female breast cancer	25.1	15.6	34.4	19.9
Prostate cancer	33.1	25.0	32.2	21.5

Source: California Dept. of Public Health, Center for Health Statistics and Informatics, California Comprehensive Master Death Files (static), compiled Oct. 2021, as reported in *California County Health Status Profiles 2022*,

[192] Ibid.

published by California Dept. of Public Health and California Conference on Local Health Officers, April 4–11, 2022, retrieved from https://www.cdph.ca.gov/Programs/CHSI/Pages/County-Health-Status-Profiles.aspx

CARDIOVASCULAR & CEREBROVASCULAR DISEASE (STROKE)

Sonoma County's crude mortality rates for both cardiovascular and cerebrovascular disease have historically been significantly higher than the state's, reflecting the higher median age of county residents. When adjusted for age, this difference largely disappeared. That remains true in the most recent mortality data.

In recent years, both the State and Sonoma County's crude and age-adjusted coronary heart disease mortality rates have fallen. Sonoma County's current age-adjusted rate of 63.0 deaths per 100,000 population is now substantially below California's age-adjusted rate of 80.7 deaths per 100,000 population.

Both California as a whole and Sonoma County meet the Healthy People 2020 goal of fewer than 103.4 age-adjusted deaths per 100,000 population from coronary heart disease.

Table 105: Coronary Heart Disease Mortality per 100,000 Population, California and Sonoma County, 2011–2013, 2015–2017, and 2018–2020

Time Period	California, Crude	California, Age-Adjusted	Sonoma County, Crude	Sonoma County, Age-Adjusted
2011–2013*	104.3	103.8	113.0	88.7
2015–2017**	97.1	88.6	102.8	73.9
2018–2020***	95.0	80.7	94.9	63.0

*Source: California Dept. of Public Health, "2011–2013 Death Statistical Master Files," as reported by California Dept. of Public Health and California Conference on Local Health Officers, April 2015.

**Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2015–2017," as reported in *California County Health Status Profiles 2019*.

*** Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020" and as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

However, Mendocino and Lake Counties have significantly higher crude and age-adjusted rates of deaths from coronary heart disease than do either the state or Sonoma County. Lake County exceeds the Healthy People 2020 target, with an age-adjusted rate of 109.0 deaths per 100,000.

Table 106: Coronary Heart Disease Mortality per 100,000 Population, Mendocino and Lake Counties, 2018–2020

Time Period	Mendocino County, Crude	Mendocino County, Age-Adjusted	Lake County, Crude	Lake County, Age-Adjusted
2018–2020	130.5	90.4	172.7	109.0

Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4,2022. All population data from California Dept. of Finance, Demographic Research Unit.

Sonoma County's age-adjusted cerebrovascular mortality rate formerly exceeded the statewide rate, but declined from 36.2 to 33.9 deaths per 100,000 population between the 2011–2013 and 2015–2017 periods. The county's rate rose again to 35.3 deaths per 100,000 population in the 2018–2020 period, but was still lower than the state rate of 37.0 per 100,000.

Table 107: Cerebrovascular Disease Mortality per 100,000 Population, California and Sonoma County, 2011–2013, 2015–2017, and 2018–2020

Time Period	California, Crude	California, Age-Adjusted	Sonoma County, Crude	Sonoma County, Age-Adjusted
2011–2013*	35.7	35.9	45.9	36.2
2015–2017**	39.9	36.9	46.4	33.9
2018–2020***	42.9	37.0	51.9	35.3

*Source: California Dept. of Public Health, "2011–2013 Death Statistical Master Files," as reported by California Dept. of Public Health and California Conference on Local Health Officers, April 2015.

**Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2015–2017," as reported in *California County Health Status Profiles 2019*.

*** Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020" and as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

Currently, the crude death rates due to strokes in both Mendocino and Lake Counties are above the statewide rates. However, the age-adjusted rate for Mendocino is close to the state rate, and the Lake County rate is below both the state and Sonoma County rates.

Table 108: Cerebrovascular Disease Mortality per 100,000 Population, Mendocino and Lake Counties, 2018–2020

Time Period	Mendocino County, Crude	Mendocino County, Age-Adjusted	Lake County, Crude	Lake County, Age-Adjusted
2018–2020	51.8	37.1	53.6	33.8

Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

DIABETES

California crude diabetes mortality rate has risen substantially in recent years, from 20.7 deaths per 100,000 population in the 2011–2013 period to 26.0 per 100,000 in 2018–2020.

In the same period, Sonoma County's crude diabetes-related mortality rate also rose, albeit not as much: from 21.9 deaths per 100,000 population in 2011–2013 to 24.2 per 100,000 in 2018–2020.

California's age-adjusted rate rose from 20.9 deaths per 100,000 population between the 2011–2013 to 22.3 per 100,000 and 2018–2020 periods. However, Sonoma County's age-adjusted rate declined from 18.2 per 100,000 in 2011–2013 to 16.8 per 100,000 in 2018–2020, again suggesting that healthcare interventions by Sonoma County providers have improved outcomes.

Table 109: Diabetes Mortality per 100,000 Population, California and Sonoma County, 2011–2013, 2015–2017, and 2018–2020

Time Period	California, Crude	California, Age-Adjusted	Sonoma County, Crude	Sonoma County, Age-Adjusted
2011–2013*	20.7	20.9	21.9	18.2
2015–2017**	23.3	21.4	24.4	18.0
2018–2020***	26.0	22.3	24.2	16.8

*Source: California Dept. of Public Health, "2011–2013 Death Statistical Master Files," as reported by California Dept. of Public Health and California Conference on Local Health Officers, April 2015.

**Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2015–2017," as reported in *California County Health Status Profiles 2019*.

*** Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

Compared to the state as a whole, Mendocino and Lake Counties have higher crude diabetes death rates, but lower age-adjusted rates. Mendocino County's age-adjusted diabetes mortality rate is higher than Sonoma County's, but Lake County's age-adjusted rate is lower than Sonoma County's.

Table 110: Diabetes Mortality per 100,000 Population, Mendocino and Lake Counties, 2018–2020

Time Period	Mendocino County, Crude	Mendocino County, Age-Adjusted	Lake County, Crude	Lake County, Age-Adjusted
2018–2020	26.9	19.4	22.9	14.6

Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

CHRONIC LOWER RESPIRATORY DISEASE

During the period 2011–2013, Sonoma County's crude death rate due to chronic lower respiratory disease, 46.1 deaths per 100,000 population, was 31.7 percent higher than that of California as a whole (which had a crude mortality rate of 35.0 deaths per 100,000 population). The county's age-adjusted rate of 38.2 per 100,000 was closer to the state's rate of 35.4 per 100,000, but still 7.8 percent (2.8 percentage points) higher than that of the state as a whole.

By the 2015–2017 period, both the state and Sonoma County rates had fallen. Sonoma County's crude death rates for lower respiratory disease remained higher than the state's, but the age-adjusted rated was now lower.

In the most recent 2018–2020 data period, crude and age-adjusted rates had declined for both the county and the state.

Table 111: Chronic Lower Respiratory Disease Mortality per 100,000 Population, California and Sonoma County, 2011–2013, 2015–2017, and 2018–2020

Time Period	California, Crude	California, Age-Adjusted	Sonoma County, Crude	Sonoma County, Age-Adjusted
2011–2013*	35.0	35.4	46.1	38.2
2015–2017**	34.4	32.0	41.4	30.1
2018–2020***	33.2	28.5	36.2	23.9

*Source: California Dept. of Public Health, "2011–2013 Death Statistical Master Files," as reported by California Dept. of Public Health and California Conference on Local Health Officers, April 2015.

**Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2015–2017," as reported in *California County Health Status Profiles 2019*.

*** Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit

However, according to Sonoma County's 2019 *Summary Measures of Health* report, in the 2013–2015 period, **Cloverdale and Geyserville** had the second highest age-adjusted chronic lower respiratory disease mortality rates of the nine subcounty areas described in that report: **41.2 deaths per 100,000 population**. This was well above the state and county-wide age-adjusted morality for all the above periods.

Within Sonoma County, only the neighboring Russian River area had a higher mortality rate: 56.5 deaths per 100,000 population. Like Cloverdale and Geyserville, this is a rural northern area of the county and more closely reflects the higher chronic lower respiratory death rates of Mendocino and Lake Counties than Sonoma County's rates. Each of those neighboring counties has much higher crude and age-adjusted rates than do Sonoma County or the state as a whole.

Table 112: Chronic Lower Respiratory Disease Mortality per 100,000 Population, Mendocino and Lake Counties, 2018–2020

Time Period	Mendocino County, Crude	Mendocino County, Age-Adjusted	Lake County, Crude	Lake County, Age-Adjusted
2018–2020	55.2	36.9	95.2	56.5

Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

ALZHEIMER'S DISEASE

With the high median age of county residents, Sonoma County's crude Alzheimer's disease mortality rates have remained consistently higher than California's. The county's crude mortality rate rose from 53.1 deaths per 100,000 population in 2011–2013 to 56.6 per 100,000 in the 2015–2017 period before leveling off at 54.5 per 100,000 in the 2018–2020 period. The California crude rate started lower and has risen faster: from 30.9 deaths per 100,000 population in 2011–2013 and 43.8 per 100,000 in 2018–2020.

Sonoma County's age-adjusted Alzheimer's mortality rates have remained stable, declining slightly from 40.2 per 100,000 in 2011–2013 to 40.0 per 100,000 in 2015–2017 and then dropping to 36.6 per 100,000 in the 2018–2020 period. Meanwhile, California's age-adjusted rate rose: from 30.8 per 100,000 in 2011–2013 to 35.7 per 100,000 in 2015–2017 and 37.7 per 100,000 in 2018–2020, actually above Sonoma County's age-adjusted rate.

The increases in Alzheimer's disease mortality probably reflects at least in part the "graying" of the population. However, assessing these trends is complicated by inconsistency in physicians' distinguishing between Alzheimer's disease and other forms of dementia on death certificates.

Table 113: Alzheimer's Disease Mortality per 100,000 Population, California and Sonoma County, 2011–2013, 2015–2017, and 2018–2020

Time Period	California, Crude	California, Age-Adjusted	Sonoma County, Crude	Sonoma County, Age-Adjusted
2011–2013*	30.9	30.8	53.1	40.2
2015–2017**	39.7	36.6	56.6	40.0
2018–2020***	43.8	37.7	54.5	36.6

*Source: California Dept. of Public Health, "2011–2013 Death Statistical Master Files," as reported by California Dept. of Public Health and California Conference on Local Health Officers, April 2015.

**Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2015–2017," as reported in *California County Health Status Profiles 2019*.

*** Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

LIVER DISEASE

California is substantially above the Health People 2020 target of 8.2 age-adjusted liver disease and cirrhosis deaths per 100,000 population: The state's most current (2018–2020) age-adjusted liver disease mortality rate is 12.6 deaths per 100,000 population.

Sonoma, Mendocino, and Lake Counties also have age-adjusted mortality rates for liver disease and cirrhosis well above the Healthy People 2020 goal.

In the 2011–2013 period, Sonoma County's crude death rate for chronic liver disease and cirrhosis was 14.3 deaths per 100,000 population, above the state rate of 12.3 per 100,000. Sonoma County's age-adjusted mortality rate of 11.9 per 100,000 was close to the state's rate of 11.7 per 100,000. Since then, Sonoma County's rates have declined, while the state's have risen. In the most recent 2018–2020 data period, the crude and age-adjusted rates for both the state and Sonoma County rose, reversing the downward trend. However, Sonoma County's age-adjusted rate of 10.3 per 100,000 remained below the state rate of 12.6 per 100,000.

Table 114: Chronic Liver Disease and Cirrhosis Mortality per 100,000 Population, California and Sonoma County, 2011–2013, 2015–2017, and 2018–2020

Time Period	California, Crude	California, Age-Adjusted	Sonoma County, Crude	Sonoma County, Age-Adjusted
2011–2013*	12.3	11.7	14.3	11.9
2015–2017**	13.6	12.3	12.5	9.5
2018–2020***	14.4	12.6	13.7	10.3

*Source: California Dept. of Public Health, "2011–2013 Death Statistical Master Files," as reported by California Dept. of Public Health and California Conference on Local Health Officers, April 2015.

**Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2015–2017," as reported in *California County Health Status Profiles 2019*.

*** Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

The chronic liver disease mortality rates in Mendocino and Lake Counties remain much higher than either Sonoma County or the California as a whole. Mendocino County's crude rate is 24.2 deaths per 100,000 population, and its age-adjusted rate is 19.3 per 100,000, 53.2 percent above the state's age-adjusted rate for the same period. Lake County has the highest crude death rate, 59.8 per 100,000, and the highest age-adjusted rate, 47.2 per 100,000, of any of California's 58 counties.

Table 115: Chronic Liver Disease and Cirrhosis Mortality per 100,000 Population, Mendocino and Lake Counties, 2018–2020

Time Period	Mendocino County, Crude	Mendocino County, Age-Adjusted	Lake County, Crude	Lake County, Age-Adjusted
2018–2020	24.2	19.3	59.8	47.2

Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

MOTOR VEHICLE TRAFFIC ACCIDENT DEATHS

Deaths from motor vehicle traffic crashes rose in both California as a whole and in Sonoma County between 2011–2013 and 2018–2020, but the age-adjusted death rates remain below the Healthy People 2020 target of 12.4 deaths per 100,000 population.

Statewide, the age-adjusted mortality rate for traffic deaths rose from 7.7 deaths per 100,000 population in 2011–2013 to 10.0 per 100,000 in 2018–2020, a 27.3 percent increase. Over the same period, the Sonoma County age-adjusted motor vehicle traffic accident mortality rate rose from 4.7 deaths per 100,000 population to 8.6 per 100,000 in 2018–2020. Although the latter figure was still below the statewide rate for the same period, it represented an 83.0 percent increase from 2011–2013.

Table 116: Motor Vehicle Traffic Accident Mortality per 100,000 Population, California and Sonoma County, 2011–2013, 2015–2017, and 2018–2020

Time Period	California, Crude	California, Age-Adjusted	Sonoma County, Crude	Sonoma County, Age-Adjusted
2011–2013*	7.8	7.7	5.2	4.7
2015–2017**	9.8	9.6	8.6	8.2
2018–2020***	10.3	10.0	9.2	8.6

*Source: California Dept. of Public Health, "2011–2013 Death Statistical Master Files," as reported by California Dept. of Public Health and California Conference on Local Health Officers, April 2015.

**Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2015–2017," as reported in *California County Health Status Profiles 2019*.

*** Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

Motor vehicle traffic death rates in Mendocino and Lake Counties are far higher than those of the state or Sonoma County. The current age-adjusted rate in Mendocino County is 29.3 deaths per 100,000 population, nearly three times the state rate. Lake County's current age-adjusted rate, 22.3 per 100,000, is more than two times the statewide age-adjusted rate.

Table 117: Motor Vehicle Traffic Accident Mortality per 100,000 Population, Mendocino and Lake Counties, 2018–2020

Time Period	Mendocino County, Crude	Mendocino County, Age-Adjusted	Lake County, Crude	Lake County, Age-Adjusted
2018–2020	28.0	29.3	25.0	22.3

Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4,2022. All population data from California Dept. of Finance, Demographic Research Unit.

According to County Health Rankings,[193] alcohol use was involved in:

- 34 percent of Mendocino County motor vehicle fatalities
- 33 percent of Sonoma County motor vehicle fatalities
- 30 percent of Lake County motor vehicle fatalities

[193] County Health Rankings, "California 2021: Sonoma (SM)."

- 28 percent of fatal traffic accidents in California and 27 percent of fatal nationwide.

ACCIDENTAL/UNINTENTIONAL INJURY DEATHS

Crude and age-adjusted mortality rates for accidents/unintentional injuries have risen significantly both in Sonoma County and statewide since 2011–2013. Both exceed the Healthy People 2020 target of 36.4 deaths per 100,000 population.

California's age-adjusted accidental death rate rose from 27.9 deaths per 100,000 population in 2011–2013 to 37.0 per 100,000 in 2018–2020, a 32.6 percent increase. Sonoma County's age-adjusted accident mortality rate rose from 24.7 per 100,000 to 41.5 per 100,000 over the same period, a 68.0 percent increase.

Table 118: Unintentional Injury (Accident) Mortality per 100,000 Population, California and Sonoma County, 2011–2013, 2015–2017, and 2018–2020

Time Period	California, Crude	California, Age-Adjusted	Sonoma County, Crude	Sonoma County, Age-Adjusted
2011–2013*	28.4	27.9	27.4	24.7
2015–2017**	33.7	32.3	39.9	34.9
2018–2020***	40.0	37.9	45.1	41.5

*Source: California Dept. of Public Health, "2011–2013 Death Statistical Master Files," as reported by California Dept. of Public Health and California Conference on Local Health Officers, April 2015.

**Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2015–2017," as reported in *California County Health Status Profiles 2019*.

*** Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

The **Cloverdale and Geyserville** area had the highest age-adjusted unintentional death rate of the nine subcounty areas described in Sonoma County's 2019 *Summary Measures of Health* report: **49.5 deaths per 100,000 population** during the 2013–2015 period, compared to 30.2 per 100,000 for Sonoma County as a whole for the same period.

Mendocino and Lake Counties have even higher unintentional injury death rates. Mendocino's age-adjusted rate of 89.6 deaths per 100,000 population is 242 per cent of the state's age-adjusted rate for 2018–2020. Lake County's age-adjusted rate of 109.1 deaths per 100,000 population is 295 percent of the state's age-adjusted rate.

Table 119: Unintentional Injury (Accident) Mortality per 100,000 Population, Mendocino and Lake Counties, 2018–2020

Time Period	Mendocino County, Crude	Mendocino County, Age-Adjusted	Lake County, Crude	Lake County, Age-Adjusted
2018–2020	67.7	89.6	90.3	109.1

Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

SUICIDE DEATHS

Sonoma County has had consistently higher crude and age-adjusted suicide mortality rates than those of California as a whole for many years The Sonoma County suicide rates have also risen more than the statewide rates in recent years.

From the 2011–2013 period to the current 2018–2020 data period, California's crude suicide death rate rose 5.8 percent, from 10.4 deaths to 11.0 deaths per 100,000 population. The state's age-adjusted rate rose from 10.2 deaths per 100,000 population to 10.5 per 100,000, an increase of just 2.9 percent and just slightly above the Healthy People 2020 target of 10.2 deaths per 100,000 population.

In the same period, Sonoma County's crude rate rose from 12.8 deaths per 100,000 population to 15.4 deaths per 100,000, a 20.3 percent increase. Sonoma County's age-adjusted rate rose from 11.2 to 14.1 deaths per 100,000 population, a 25.9 percent increase.

Table 120: Suicide Mortality per 100,000 Population, California and Sonoma County, 2011–2013, 2015–2017, and 2018–2020

Time Period	California, Crude	California, Age-Adjusted	Sonoma County, Crude	Sonoma County, Age-Adjusted
2011–2013*	10.4	10.2	12.8	11.2
2015–2017**	10.8	10.5	13.7	12.4
2018–2020***	11.0	10.5	15.4	14.1

*Source: California Dept. of Public Health, "2011–2013 Death Statistical Master Files," as reported by California Dept. of Public Health and California Conference on Local Health Officers, April 2015.

**Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2015–2017," as reported in *California County Health Status Profiles 2019*.

*** Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

The Sonoma County Department of Health Services *Community Health Needs Assessment 2013–2016* reported that county residents over age 60 have an even higher suicide rate: 20.8 deaths per 100,000 population, compared to 15.9 deaths per 100,000 population for adults in the same age range statewide for the same period.[194]

Sonoma County residents over age 60 also have a greater incidence of hospitalization due to **nonfatal intentional self-harm injuries** than do adults over 60 statewide: 24.2 hospitalizations per 100,000 population, versus 23.2 per 100,000 for all California adults over age 60.[195]

Mendocino and Lake Counties have higher crude and age-adjusted suicide mortality rates than do the state or Sonoma County. Mendocino County's age-adjusted rate of 20.8 deaths per 100,000 is nearly twice the state's age-adjusted rate of 10.5 deaths per 100,000 population and one and a half times higher than Sonoma County's. Lake County's age-adjusted rate of 25.4 deaths per 100,000 population is 242 percent of the state rate.

Table 121: Suicide Mortality per 100,000 Population, Mendocino and Lake Counties, 2018–2020

Time Period	Mendocino County, Crude	Mendocino County, Age-Adjusted	Lake County, Crude	Lake County, Age-Adjusted
2018–2020	22.7	20.9	25.5	25.4

Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles* 2022, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

HOMICIDE DEATHS

California's homicide rate overall has remained relatively stable over the past decade. The crude homicide mortality rate fell slightly from 2011–2013, while the age-adjusted rate rose fractionally, from 5.1 to 5.2 deaths per 100,000 population.

Sonoma County continues to have a lower age-adjusted homicide mortality rate than does California overall: only 2.2 homicide deaths per 100,000 population in 2018-2020

Both California and Sonoma County currently meet the Healthy People 2020 target of no more than 5.5 homicide deaths per 100,000 population.

[194] Retrieved from *https://sonomacounty.ca.gov/Health/Community-Health-Needs-Assessment/*.

[195] California Dept. of Public Health, Epicenter: California Injury Data Online, *http://epicenter.cdph.ca.gov*, as cited in *Sonoma County Community Health Assessment: Sonoma County 2013–2016*.

Table 122: Homicide Mortality per 100,000 Population, California and Sonoma County, 2011–2013, 2015–2017, and 2018–2020

Time Period	California, Crude	California, Age-Adjusted	Sonoma County, Crude	Sonoma County, Age-Adjusted
2011–2013*	5.2	5.1	2.2	2.3
2015–2017**	5.2	5.2	2.8	2.8
2018–2020***	5.1	5.2	2.2	2.2

*Source: California Dept. of Public Health, "2011–2013 Death Statistical Master Files," as reported by California Dept. of Public Health and California Conference on Local Health Officers, April 2015.

**Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2015–2017," as reported in *California County Health Status Profiles 2019*.

*** Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

However, Mendocino and Lake Counties have age-adjusted homicide mortality rates above the Healthy People 2020 target. Mendocino County had 8.4 deaths per 100,000 population and Lake County had 8.9 deaths per 100,000 population in the 2018–2020 data reporting period.

Table 123: Homicide Mortality per 100,000 Population, Mendocino and Lake Counties, 2018–2020

Time Period	Mendocino County, Crude	Mendocino County, Age-Adjusted	Lake County, Crude	Lake County, Age-Adjusted
2018–2020	7.6	8.4	7.8	8.9

Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

FIREARM DEATHS

California's statewide age-adjusted rate of firearm-related deaths remained consistently in the 7.8 to 7.9 deaths per 100,000 population range from 2011–2013 to 2018–2020.

Sonoma County continues to have a lower rate of firearm-related deaths than does the state as a whole, but Sonoma County's age-adjusted firearm-related mortality rate for 2018–2020 was 6.2 deaths per 100,000 population, up 24.0 percent from 5.0 deaths per 100,000 in the 2015–2017 reporting period.

Both the current California and Sonoma County firearm death rates meet the Healthy People 2020 target of no more than 9.3 deaths per 100,000 population.

Table 124: Firearm-Related Mortality per 100,000 Population, California and Sonoma County, 2011–2013, 2015–2017, and 2018–2020

Time Period	California, Crude	California, Age-Adjusted	Sonoma County, Crude	Sonoma County, Age-Adjusted
2011–2013*	7.9	7.8	6.5	5.9
2015–2017**	8.0	7.9	5.7	5.0
2018–2020***	7.9	7.8	7.1	6.2

*Source: California Dept. of Public Health, "2011–2013 Death Statistical Master Files," as reported by California Dept. of Public Health and California Conference on Local Health Officers, April 2015.

**Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2015–2017," as reported in *California County Health Status Profiles 2019*.

*** Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4,2022. All population data from California Dept. of Finance, Demographic Research Unit.

However, firearm-related mortality rates in Mendocino and Lake Counties are well above the rates of the state as a whole or Sonoma County, and are substantially above the Health People 2020 targets. The current Mendocino County age-adjusted rate of 12.9 deaths per 100,000 residents is 165 percent of the state rate for 2018–2020, while Lake County's age-adjusted firearm related mortality rate of 17.4 deaths per 100,000 residents is 223 percent of the state rate for 2018–2020.

Table 125: Firearm-Related Mortality per 100,000 Population, Mendocino and Lake Counties, 2018–2020

Time Period	Mendocino County, Crude	Mendocino County, Age-Adjusted	Lake County, Crude	Lake County, Age-Adjusted
2018–2020	13.6	12.9	17.2	17.4

Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

DRUG OVERDOSE DEATHS

The rate of drug overdose deaths has risen both in Sonoma County and statewide since 2015. The county's drug overdose mortality rate is now higher than the California rate. In the 2018–2020 period, Sonoma County's age-adjusted drug overdose mortality rate was 23.5 deaths per 100,000 population, compared to 17.8 per 100,000 for California as a whole.

The Sonoma County rate represents a **245 percent increase in overdose mortality over a seven-year period**; the age-adjusted mortality rate in 2011–2013 was only 9.6 per 100,000.

Sonoma County's age-adjusted overdose mortality also grew at a substantially faster rate than did California's. The statewide rate grew from 11.1 to 17.8 per 100,000 over the same period, an increase of 60.0 percent.

Table 126: Drug Overdose Mortality per 100,000 Population, California and Sonoma County, 2011–2013, 2015–2017, and 2018–2020

Time Period	California, Crude	California, Age-Adjusted	Sonoma County, Crude	Sonoma County, Age-Adjusted
2011–2013*	11.5	11.1	10.3	9.6
2015–2017**	13.3	12.7	15.5	14.4
2018–2020***	18.4	17.8	23.3	23.5

*Source: California Dept. of Public Health, "2011–2013 Death Statistical Master Files," as reported by California Dept. of Public Health and California Conference on Local Health Officers, April 2015.

**Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2015–2017," as reported in *California County Health Status Profiles 2019*.

*** Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

Table 127: Drug Overdose Mortality per 100,000 Population Mendocino and Lake Counties, 2018–2020

Time Period	Mendocino County, Crude	Mendocino County, Age-Adjusted	Lake County, Crude	Lake County, Age-Adjusted
2018–2020	44.3	42.0	74.9	66.1

Source: California Dept. of Public Health, "California Comprehensive Master Death Files, 2016–2020," as reported in *California County Health Status Profiles 2022*, April 4, 2022. All population data from California Dept. of Finance, Demographic Research Unit.

A key driver of this trend has been the widespread use of opioids and a resultant prevalence of opioid overdose deaths. In 2021, California had an age-adjusted opioid overdose mortality rate of 16.8 deaths per 100,000 population, which represents a 323 percent increase from the 2017 rate of 5.2 deaths per 100,000 population. Sonoma County's rate grew even faster: from 6.0 deaths per 100,000 in 2017 to 25.8 per 100,000 in 2021.

The two counties to the north of Sonoma, Lake County and Mendocino County, have still higher rates. Mendocino County's 2021 age-adjusted opioid overdose mortality rate of 55.9 per

100,000 was the second-highest county rate in California, while Lake County's rate of 49.3 per 100,000 was third-highest.[196]

Table 128: Opioid Overdose Deaths, Emergency Department Visits, and Hospitalizations, California (CA), Sonoma County (SM), Mendocino County (ME), and Lake County (LK), Age-Adjusted Events and Rates Per 100,000 Population, 2017

Event	CA, Events	CA, Rate	SM, Events	SM, Rate	ME, Events	ME, Rate	LK, Events	LK, Rate
Opioid overdose deaths	2,194	5.2	30	6.0	17	19.3	13	17.0
Opioid overdose ED visits	8,368	20.2	161	31.3	33	37.0	33	48.8
Opioid overdose hospitalizations	3,918	9.0	57	9.3	14	12.9	15	18.0

Source: California Opioid Overdose Surveillance Dashboard, *https://skylab.cdph.ca.gov/ODdash/*

Table 129: Opioid Overdose Deaths, Emergency Department Visits, and Hospitalizations, California (CA), Sonoma County (SM), Mendocino County (ME), and Lake County (LK), Age-Adjusted Events and Rates Per 100,000 Population, 2019

Event	CA, Events	CA, Rate	SM, Events	SM, Rate	ME, Events	ME, Rate	LK, Events	LK, Rate
Opioid overdose deaths	3,244	7.9	65	13.1	18	21.1	23	32.5
Opioid overdose ED visits	11,767	28.8	186	37.4	38	43.5	32	49.4
Opioid overdose hospitalizations	4,244	9.8	49	8.4	19	16.9	17	23.9

Source: California Opioid Overdose Surveillance Dashboard, *https://skylab.cdph.ca.gov/ODdash/*

Table 130: Opioid Overdose Deaths, Emergency Department Visits, and Hospitalizations, California (CA), Sonoma County (SM), Mendocino County (ME), and Lake County (LK), Age-Adjusted Events and Rates Per 100,000 Population, 2020

Event	CA, Events	CA, Rate	SM, Events	SM, Rate	ME, Events	ME, Rate	LK, Events	LK, Rate
Opioid overdose deaths	5,502	13.5	111	23.7	20	25.8	17	26.1
Opioid overdose ED visits	16,537	41.0	303	64.6	76	101.9	46	67.4
Opioid overdose hospitalizations	4,342	10.2	58	10.0	25	21.1	13	17.3

Source: California Opioid Overdose Surveillance Dashboard, *https://skylab.cdph.ca.gov/ODdash/*

[196] California Dept. of Public Health, Substance and Addiction Prevention Branch, via the California Opioid Overdose Surveillance Dashboard, *https://skylab.cdph.ca.gov/ODdash/*, as of Sep. 22, 2022.

Table 131: Opioid Overdose Deaths, Emergency Department Visits, and Hospitalizations, California (CA), Sonoma County (SM), Mendocino County (ME), and Lake County (LK), Age-Adjusted Events and Rates Per 100,000 Population, 2021

Event	CA, Events	CA, Rate	SM, Events	SM, Rate	ME, Events	ME, Rate	LK, Events	LK, Rate
Opioid overdose deaths	6,843	16.8	122	25.8	47	55.9	31	49.3
Opioid overdose ED visits	21,016	52.1	276	60.9	89	125.4	69	115.6
Opioid overdose hospitalizations	5,187	12.2	61	9.4	21	26.4	9	15.0

Source: California Opioid Overdose Surveillance Dashboard, https://skylab.cdph.ca.gov/ODdash/.

Subcounty data on drug overdose mortality is statistically unstable due to small sample sizes, but available data indicates that in 2017, Cloverdale (ZIP Code 95425) had an age-adjusted opioid overdose mortality rate of 21.1 deaths per 100,000 population, much higher than the overall rate for Sonoma County. In 2019, the opioid morality rate for Cloverdale was 18.5 deaths per 100,000 population, which was also well above Sonoma County's overall 2019 rate of 13.1 deaths per 100,000 for the same period.[197]

The county's prevalence of alcohol use may be an additional factor in these higher mortality rates. Research published in the *American Journal of Preventive Medicine* in 2019 found that binge drinkers are nearly twice as likely to misuse prescription opioids as are nondrinkers.[198] Sonoma, Lake, and Mendocino Counties all have high percentages of binge drinkers — about 17 percent of adults in each of the three counties.[199]

Prescription Opioids

In 2017, 70 percent of California's 2,194 opioid overdose deaths involved prescription medications. The total number of opioid prescriptions filled in California that year (excluding buprenorphine, used in medically assisted treatment (MAT) for opioid abuse) was 21,787,042, representing an annual prescribing rate of 517.3 prescriptions per 1,000 population.[200] Due to extensive public health efforts, by 2020, the number of opioid prescriptions written in California

[197] Ibid. Subcounty data for 2020 and later is not yet available.

[198] Marissa B. Esser et al, "Binge Drinking and Opioid Misuse in the U.S., 2012–2014," *American Journal of Preventive Medicine* 2019;57(2):197–208. doi:10.1016/j.amepre.2019.02.025

[199] Based on 2019 UDS data from the UDS Mapper, https://www.udsmapper.org.

[200] California Dept. of Justice, Office of the Attorney General, data from the Controlled Substance Utilization Review and Evaluation System (CURES), prepared by the California Dept. of Public Health, Substance and Addiction Prevention Branch.

had fallen by 31.7 percent, to 17,576,579, a rate of 374.9 prescriptions per 1,000 population.[201] The opioid prescribing rates in Sonoma, Mendocino, and Lake Counties had also fallen significantly by 2020, although each county remained above the statewide rate.

Table 132: Opioid Prescriptions Filled, California and Selected Counties, Events and Rates per 1,000 Residents, 2017

Area	Opioid Prescriptions Filled	Prescriptions per 1,000 Residents
California	21,787,042	517.3
Sonoma County	399,240	642.9
Mendocino County	88,033	806.4
Lake County	77,437	949.5

Source: California Opioid Overdose Surveillance Dashboard, *https://skylab.cdph.ca.gov/ODdash/*

Table 133: Opioid Prescriptions Filled, California and Selected Counties, Events and Rates per 1,000 Residents, 2019

Area	Opioid Prescriptions Filled	Prescriptions per 1,000 Residents
California	17,576,679	400.6
Sonoma County	365,065	503.5
Mendocino County	79,967	692.2
Lake County	56,927	678.9

Source: California Opioid Overdose Surveillance Dashboard, *https://skylab.cdph.ca.gov/ODdash/*

Table 134: Opioid Prescriptions Filled, California and Selected Counties, Events and Rates per 1,000 Residents, 2020

Area	Opioid Prescriptions Filled	Prescriptions per 1,000 Residents
California	14,867,426	374.9
Sonoma County	270,435	417.8
Mendocino County	62,364	529.6
Lake County	46,211	545.3

Source: California Opioid Overdose Surveillance Dashboard, *https://skylab.cdph.ca.gov/ODdash/*

Table 135: Opioid Prescriptions Filled, California and Selected Counties, Events and Rates per 1,000 Residents, 2021

Area	Opioid Prescriptions Filled	Prescriptions per 1,000 Residents
California	14,777,578	326.7
Sonoma County	280,429	428.6
Mendocino County	58,724	498.9
Lake County	44,651	520.5

Source: California Opioid Overdose Surveillance Dashboard, *https://skylab.cdph.ca.gov/ODdash/*

[201] Ibid.

In 2021, the number of opioid prescriptions filled in Sonoma County increased by 3.7 percent from the previous year, raising the age-adjusted prescription rate from 417.8 to 428.6 prescriptions per 1,000 residents, but opioid prescriptions in Mendocino and Lake Counties continued to decline, as did the statewide rates.

On a statewide basis:[202]

- Older age groups have higher rates of prescription opioid overdose deaths. The prescription opioid mortality rate is highest among persons aged 55–59 years.
- Younger age groups have higher rates of overdose deaths due to illicit opioids such as heroin, with the highest mortality rates among persons aged 25–29 years.

Fentanyl and Synthetic Opioids

One of the principal reasons opioid deaths have continued to rise despite substantial reductions in opioid prescriptions is the growing use of fentanyl, a powerful synthetic opioid.[203]

According to California Department of Public Health (CDPH) data, the state's 5,502 opioid-related drug overdose deaths in 2020 included 3,946 fentanyl-related deaths. The number of fentanyl-related deaths soared to 5,722 in 2021, more than the total number of opioid-related overdose deaths the previous year.

Total opioid-related overdose deaths climbed to 6,843, which means that fentanyl was involved in 83.6 percent of all opioid overdose deaths and 54.9 percent of all drug overdose deaths in California in 2021.

In Sonoma County, the number of fentanyl-related overdose deaths recorded in 2021 (122) exceeded the total number of drug overdose deaths in the county in 2019 (105).

[202] Ibid.

[203] The history of this potent synthetic painkiller (which still has a variety of useful clinical applications despite its potential for abuse) is discussed in Theodore H. Stanley, "The Fentanyl Story," *The Journal of Pain* 2014;15(12):1215–1226. doi:10.1016/j.jpain.2014.08.010

Table 136: Drug Overdose (OD) Deaths Related to Opioids and Fentanyl, California and Selected Counties, 2021

Area	All Drug OD Deaths	Opioid-Related Drug OD Deaths	Opioid-Related % of All Drug OD Deaths	Fentanyl-Related Drug OD Deaths	Fentanyl-Related % of All Opioid OD Deaths	Fentanyl-Related % of All Drug OD Deaths
California	10,416	6,843	65.7%	5,722	83.6%	54.9%
Sonoma County	155	122	78.7%	105	86.1%	67.7%
Mendocino County	72	47	65.3%	40	85.1%	55.6%
Lake County	64	31	48.4%	26	83.9%	40.6%

Source: California Opioid Overdose Surveillance Dashboard, *https://skylab.cdph.ca.gov/ODdash/*

In 2021, the age-adjusted fentanyl-related overdose death rate was 14.3 deaths per 100,000 population for California as a whole and 22.9 deaths per 100,000 population for Sonoma County. The rates for Mendocino and Lake Counties were even higher: Lake County's age-adjusted fentanyl-related overdose death rate was 43.2 deaths per 100,000, while Mendocino County's was 50.2 deaths per 100,000, the second highest in the state.[204]

The CDC believes that recent increases in stimulant-related overdose deaths are at least partly attributable to co-use of fentanyl or other synthetic opioids,[205] which are found with increasing frequency in stimulants such as cocaine and methamphetamine.

Fentanyl merits special attention because of the unique challenges it poses for first responders, substance abuse treatment, and harm reduction efforts:

- Suppliers of illicit drugs now routinely substitute fentanyl, which is cheap and easy to manufacture, for other, more expensive narcotics such as heroin. Unlike other substances used to "cut" narcotics, fentanyl may be more potent than the drugs for which it is substituted.

- Users and their individual dealers generally cannot control and often don't know whether a given drug contains fentanyl, or in what concentration.[206]

[204] California Dept. of Public Health, Substance and Addiction Prevention Branch, via the California Opioid Overdose Surveillance Dashboard, *https://skylab.cdph.ca.gov/ODdash/,* as of Oct. 28, 2022.

[205] CDC Health Alert Network, Dec. 17, 2020, *https://emergency.cdc.gov/han/2020/han00438.asp*.

[206] See Sarah G. Mars et al, "Illicit fentanyl in the opioid street market: desired or imposed?" *Addiction* 2021;114(5):774–780. doi:10.1111/add.14474. The authors discuss some of this study's key findings in Laura Kurtzman, "Drug Wholesalers Drove Fentanyl's Deadly Rise, Report Concludes," UCSF News, Dec. 4, 2018, *https://www.ucsf.edu/news/2018/12/412466/drug-wholesalers-drove-fentanyls-deadly-rise-report-concludes*.

- Fentanyl's high potency (at least 50 times that of morphine[207]) carries a high inherent risk of overdose, particularly for users with low opioid tolerance (such as new users and habitual users who relapse after treatment). Even where naloxone is available for emergency treatment, multiple doses may be required to reverse a fentanyl overdose.[208]

- Fentanyl is now sometimes found in psychostimulants such as cocaine and methamphetamine, whose users may have lower opioid tolerance (and thus higher overdose risk) than habitual opioid users,[209] and may also be less familiar with the use of naloxone for opioid overdose reversal.

- Fentanyl test strips are now available that enable users to detect the presence of fentanyl in any given drug, whatever its form. Test strips are inexpensive and easy to use, but many users may be unaware of them.[210]

Pandemic Impact

The COVID-19 pandemic brought substantial increases in overdose mortality, both nationwide and in California.

According to data from National Center for Health Statistics (NCHS) National Vital Statistics System, during the 12-month period December 2019 to November 2020, 8,849 drug overdose deaths were reported in California, up 40.8 percent from the preceding 12-month period (December 2018 to November 2019).[211]

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[207] Per the Centers for Disease Control and Prevention's "Opioid Overdose: Fentanyl" fact sheet, located at *https://www.cdc.gov/drugoverdose/opioids/fentanyl.html*.

[208] An issue noted in, *inter alia*, the National Institute on Drug Abuse (NIDA) policy brief "Naloxone for Opioid Overdose: Life-Saving Science," June 2021, *https://www.drugabuse.gov/publications/naloxone-opioid-overdose-life-saving-science*.

[209] NIDA Director Nora Volkow, M.D., raised this point at a national addiction conference in April 2021, quoted by Abby Goodnough, "Overdose Deaths Have Surged During the Pandemic, C.D.C. Data Shows," *New York Times*, April 14, 2021,*https://www.nytimes.com/2021/04/14/health/overdose-deaths-fentanyl-opiods-coronaviurs-pandemic.html* [sic].

[210] Giselle Appel et al, "Fentanyl Test Strips Empower People and Save Lives—So Why Aren't They More Widespread?" Health Affairs Blog, June 2, 2021. doi:10.1377/forefront.20210601.974263

[211] Farida B. Ahmad et al, "Provisional drug overdose death counts," National Center for Health Statistics, as of June 16, 2021, *https://www.cdc.gov/nchs/nvss/vsrr/drug-overdose-data.htm*.

Those predictions have been borne out by overdose mortality data from the California Opioid Overdose Surveillance Dashboard, which shows that statewide, the age-adjusted annualized quarterly overdose death rate for all drugs climbed from 15.2 deaths per 100,000 population in the fourth quarter of 2019 to 21.7 deaths per 100,000 in the second quarter of 2020, during the first phase of pandemic lockdowns and "shelter-in-place" orders. The age-adjusted annualized opioid overdose rate climbed from 8.7 deaths per 100,000 in Q4 2019 to 13.8 deaths per 100,000 in Q2 2020.

Since then, the state's age-adjusted annualized quarterly overdose death rates have fluctuated, but have remained consistently above those Q2 2020 figures. All-drug mortality peaked at 27.0 deaths per 100,000 population for the third quarter of 2021, while opioid mortality reached 17.6 deaths per 100,000 during the same period. The latter figure is more than twice pre-pandemic opioid mortality rates.[212]

In Sonoma County, the age-adjusted annualized quarterly all-drug overdose death rate soared from 22.9 deaths per 100,000 population in the fourth quarter of 2019 to 37.7 per 100,000 in the second quarter of 2020. The county's age-adjusted annualized opioid overdose rate climbed from 16.9 deaths per 100,000 population to 31.9 deaths per 100,000 population during that time. All-drug mortality in Sonoma County declined somewhat during the latter half of 2020, but rose again in early 2021, peaking at 38.7 deaths per 100,000 population in Q2 2021.[213]

These trends suggest that **the stresses of the pandemic caused some individuals who did not previously abuse opioids or other drugs to start** and may have caused existing users to use more frequently or engage in other risky substance-use-related behaviors.

COVID-19

More than one in five residents of Sonoma County have had at least one known COVID-19 infection, with a total of 110,495 diagnosed cases recorded through Dec. 7, 2022. As of that date, there had been at least 523 deaths, for a case fatality rate of approximately 0.5 percent.[214] The impact of the pandemic on the AVH service area is discussed in greater detail in the Emergency Preparedness chapter.

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[212] California Dept. of Public Health, Substance and Addiction Prevention Branch, via the California Opioid Overdose Surveillance Dashboard, *https://skylab.cdph.ca.gov/ODdash/,* as of Oct. 28, 2022.

[213] Ibid.

[214] Sonoma County COVID-19 Data Dashboard, *https://socoemergency.org/emergency/novel-coronavirus/coronavirus-cases/*, as of Dec. 7, 2022.

PART FIVE: Emergency Preparedness

Overview

The Alexander Valley Healthcare (AVH) service area and its residents may be threatened by a variety of natural and manmade disasters and emergencies, including:

- Geological instability, earthquakes, and areas susceptible to liquefaction
- Periodic droughts and water shortages (including the current severe drought)
- Record high temperatures
- Disruptions of the electrical grid
- Frequent, dangerous wildfires
- Seasonal flooding and landslides in some communities
- Pandemics and other public health emergencies
- Vulnerability to data breaches.

As a federally qualified health center and the service area's sole medical provider, AVH has had to plan for and respond to these and other potential community emergencies.

Environmental Hazards

GEOLOGICAL INSTABILITY AND EARTHQUAKES

The geography of Sonoma County has historically provided a Mediterranean-like climate favorable to agriculture, tourism, and year-round leisure activities. However, underlying this diverse geography is a tectonic base that results in periodic seismic activity.

Three major fault lines run through Sonoma County:

(1) **The San Andreas Fault** runs along the coast of Sonoma and Mendocino Counties until it enters the Pacific Ocean. Sonoma County was affected by the 1906 San Francisco Earthquake, which caused portions of the Pacific and North American tectonic plates to shift by as much as 15 feet in opposite directions along the San Andreas Fault.

(2) **The Rogers Creek-Hayward Fault** runs through the center of Sonoma County, paralleling Highway 101. It connects the Hayward Fault, which runs east of San Francisco Bay, and the Healdsburg Fault, to the north. This fault line and its spurs periodically produce smaller tremors and/or quakes measuring between 2.5 and 5.0 on the Richter scale, and occasional quakes measuring 4.0 and higher, most recently in September 2022.

(3) **The Maacama Fault** runs along the eastern edge of Sonoma County and the western edge of Napa County. This fault also generates a number of small and moderate-size quakes, and is affected by the hot springs in Calistoga, in neighboring Napa County.

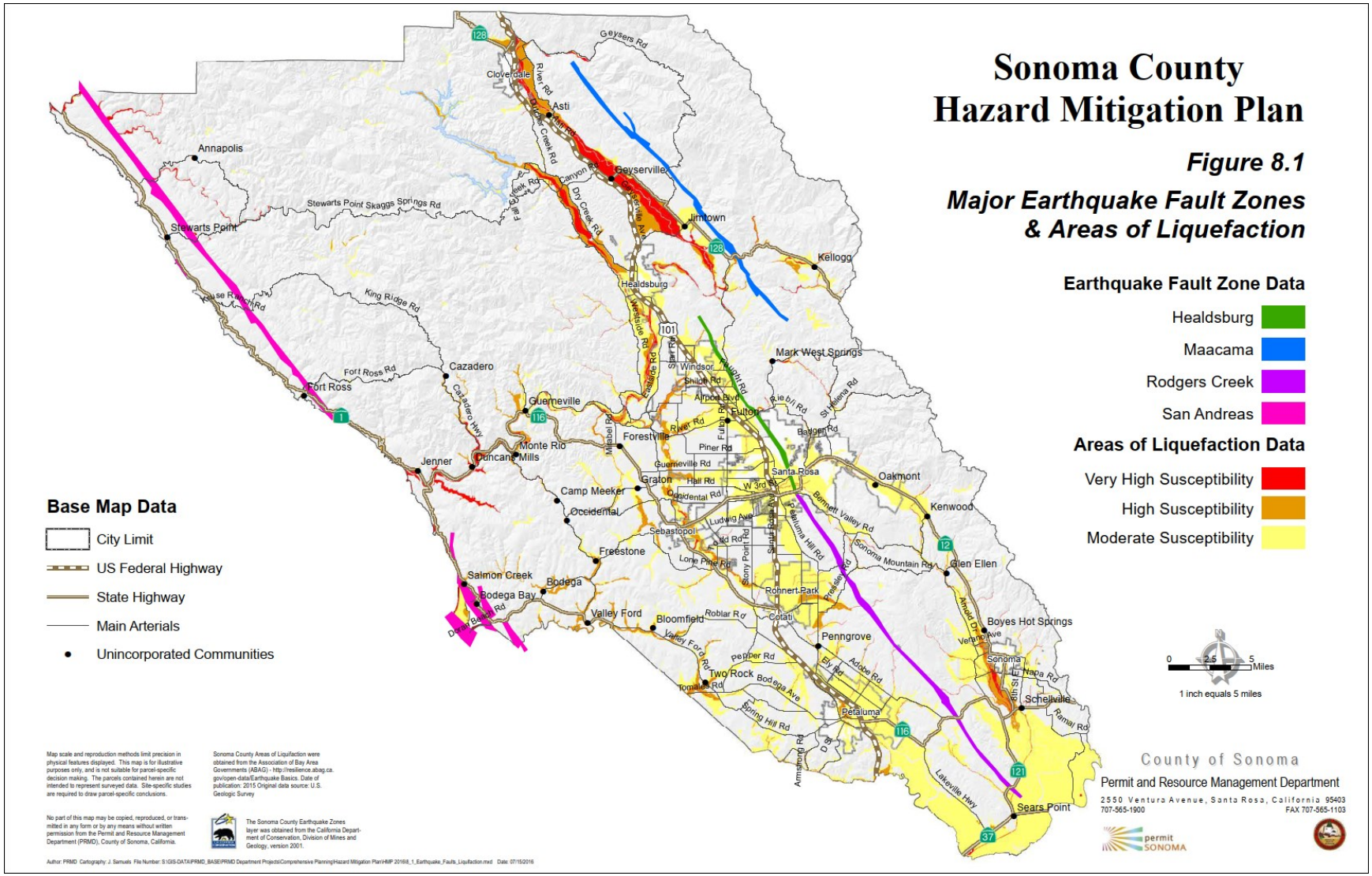
Connected to these major fault lines is a grid of smaller offshoot faults, which run like a latticework across the county's valley floors. All of these faults are affected by the movement of the Pacific and North American continental plates, and also by their interaction with the Clear Lake Volcanic Shield (located in Lake County, north of Cloverdale), a volcano that last erupted approximately 11,000 years ago, depositing magma, ash, and rock across the North Bay region.

Figure 18: Photo of Mount Konocti, Largest Volcanic Feature of the Clear Lake Volcanic Area

Photo: "Mount Konocti on the western shore of Clear Lake, California" by Julie M. Donnelly-Nolan, retrieved from https://www.usgs.gov/media/images/mount-konocti-western-shore-clear-lake-california (U.S. Geological Survey public domain photo / cropped from original)

Areas between the Rogers Creek Fault and Maacama Fault, along the Healdsburg Fault line, are subject to liquefaction during major earthquakes. The largest of these areas encompasses most of southern Alexander Valley, including the Healdsburg and Geyserville areas.

Figure 19: Map of Earthquake Fault Lines and Liquefication Areas in Sonoma County



Source: County of Sonoma Permit and Resource Management Department (used with the permission of Permit Sonoma)

The risk for county residents is that major quakes along these fault lines could damage or disrupt power grids, water service, transportation, and food supply lines, cutting residents off from essential services. Such potential disruptions underlie the importance of service area residents having access to locally available healthcare. In the wake of a major earthquake, leaving the area to seek care elsewhere might be difficult or impossible.

AVH has ensured its ability to maintain continuity of service through the installation of a 7,500-watt generator to supply electricity in the event of a power outage, having multiple offsite backups of electronic patient data and financial records, and having onsite drinking water supplies for emergencies. The health center also maintains communications backup systems with local emergency management systems and first responders.

Additionally, AVH distributes information to patients on how to maintain emergency supplies of food and water, and works with community outreach groups such as **Resilient Cloverdale** and **CloveReady** to encourage families to prepare for potential disasters through public education and alerts.

DROUGHTS

California has a naturally dry climate, which cycles between multi-year droughts and rainier periods. These cyclical shifts are described as being “La Niña” or “El Niño” years, depending on weather patterns over the Pacific Ocean:

- “El Niño” is a pattern that occurs when the ocean’s surface temperature is warmer at the equator; air shifts southward and picks up more moisture, which falls as rain or snow over the western United States.

- “La Niña” is a pattern that occurs when the ocean surface temperature at the equator is cooler for several months, coupled with larger-scale changes in wind and air pressure. This can shift air northward, where it picks up less moisture, resulting in drought years in the western U.S.

These patterns are subject to influences such as the temperature and salinity of surface water at the equator,[215] as well as other global climate shifts.[216]

Recent studies have identified historical evidence of "megadroughts" lasting two to three decades. There have been eight of these megadroughts in California in the past 1,200 years. This research indicates that the current drought period, beginning in 2000 and running through at least 2022, is the driest megadrought since 800 C.E.[217]

The state experienced lower-than-average rainfalls from 2011 through 2017, and then seemingly returned to normal-range rainfalls. However, the period from April 2019 to March 2021 turned dry again — the fourth-driest two-year period on record. The combination of low precipitation and high temperatures have made this drought particularly intense.[218] When 2022 also turned into a La Niña drought year, scientists began to see the entire last 20 years as a megadrought,[219] as well as the first triple-year La Niña.[220]

The current drought has had a particularly serious impact on the Russian River, which runs from Potter Valley and the Lake Mendocino reservoir through Ukiah and Hopland into Sonoma County, where it passes through Cloverdale, parallel to Highway 101, and on to Healdsburg and Windsor before turning west to join the Pacific Ocean in the coastal town of Jenner.

Together, the river and its tributaries — Laguna de Santa Rosa, Santa Rosa Creek, Brush Creek, Dry Creek, Mark West Creek, Matanzas Creek, Spring Creek, and Piner Creek — are the largest water source for northern and western parts of Sonoma County. The severe drought of the past decade has left Sonoma County residents and agriculture with extreme water shortages, forcing stringent water conservation measures.

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[215] Paul J. Durack et al, "Ocean Salinities Reveal Strong Global Water Cycle Intensification During 1950–2000," *Science* 2012;36(6080): 455–458. doi:10.1126/science.1212222

[216] Margaret Osbourne, "The Western U.S. is Experiencing the Worst Drought in More Than 1,200 years," *Smithsonian Magazine*, Feb. 17, 2022, *https://www.smithsonianmag.com/smart-news/the-western-us-is-experiencing-the-worst-megadrought-in-more-than-1200-years-180979590/*.

[217] Ibid.

[218] Public Policy Institute of California, "California's Latest Drought in 4 Charts," May 3, 2021, *https://www.ppic.org/blog/californias-latest-drought-in-4-charts/*.

[219] Ibid.

[220] For an analysis of the current La Niña cycle, see the World Meteorological Organization press release "WMO predicts first 'triple-dip' La Niña of the century," Aug. 31, 2022, *https://public.wmo.int/en/media/press-release/wmo-predicts-first-%E2%80%9Ctriple-dip%E2%80%9D-la-ni%C3%B1a-of-century*.

An additional concern is that by 2021, water levels had dropped sufficiently to allow the proliferation of invasive plants such as duckweed, azolla, and water primrose, as well as the spread of cyanobacteria and other toxins. This discourages boaters and swimmers from using the river's beaches, and has led to the posting of public health caution signs.[221]

Given the large numbers of vulnerable people in the AVH service area, including seniors and very low-income families, it has become necessary for AVH clinicians and support staff to ask patients if they have sufficient safe water supplies and a means of remaining staying cool.

RECORD HEATWAVES

This historical drought, like many droughts before it, has been accompanied by record heatwaves, which threaten not only people, animals, and agriculture, but also the electrical grid which powers the community's homes, workplaces, schools, and healthcare facilities.

On Tuesday, Sep. 6, 2022, the City of Santa Rosa, the Sonoma County seat, reached a peak temperature of 115 degrees Fahrenheit, breaking the previous record for highest recorded temperature, 113 degrees, set back on July 11, 1913. According to data from the National Weather Service, Cloverdale reached 116 degrees on September 6, while Healdsburg and Sebastopol each hit 115 degrees. The Lake Sonoma Recreation Area in Geyserville hit 117 degrees, as did the City of Ukiah in Mendocino County.

Such high temperatures carry substantial health risks, particularly for homeless individuals; people who usually work outdoors or in poorly ventilated areas; and people on multiple medications or with high blood pressure, cardiac disease, or other chronic conditions.[222]

ELECTRICAL GRID DISRUPTIONS

The electrical drain from air conditioning private homes and offices, as well as the retail stores, restaurants, movie theaters, and public buildings to which people gravitate in order to cool down, puts intense strain on the state's electrical grid during the hottest parts of the year.

The California Independent System Operator (ISO), the nonprofit organization that manages 80 percent of the state's electrical grid, issues frequent "Flex Alerts": requests for customers to voluntarily reduce their consumption of electricity during peak hours (4 p.m. to 9 p.m.), which is

[221] Mary Callahan, "Postcards from the Drought: Invasive plants growing in Russian River due to low, slow water," *The Press Democrat* [Santa Rosa, Calif.], Sep. 18, 2021, https://www.pressdemocrat.com/article/news/invasive-plants-growing-in-russian-river-due-to-low-slow-water/.

[222] Ibid.

also the period when the system's solar sources lose much or all of their effectiveness. If Flex Alerts fail to sufficiently reduce power demand, ISO grid operators may call for "rotating power outages" (also known as "controlled load sheds"): controlled shutdowns of parts of local electrical grids to prevent larger areas of the grid from collapsing.

The heatwave in the first week of September 2022 brought seven days of Flex Alerts, as projections showed the state might fall at least 2,000 to 5,000 megawatts short of the power supply needed to meet peak demand at 4:45 p.m. On September 6, emergency text messages went out to 27 million California residents in high-electrical-usage areas, requesting voluntary cutbacks to produce a 2,000-megawatt drop in total demand within minutes. Although the ISO did not ultimately initiate rotating power outages, grid operators in six cities, including Healdsburg and Ukiah, shut down power anyway, having misunderstood the initial ISO order.[223] The state's total usage for the day topped 52,061 megawatts, exceeding the previous daily peak of 50,270 megawatts set 16 years earlier.[224]

Even if power demand does not exceed capacity, local utility companies throughout California may proactively shut off power in certain areas to prevent their equipment from starting fires (for example, in the event that high winds knock down powerlines). Depending on weather conditions, such a "Public Safety Power Shutoff" (PSPS) can last for days, causing considerable problems for residents, businesses, and public services.

AVH's backup generator has enabled AVH to protect its stay open, maintain access to its patient electronic health records, and provide lighting and cooling during outages.

WILDFIRES

Extreme temperatures and an already "baked" landscape also increase the risk of dry lightning and wildfires.[225] Thanks in part to California's droughts, the state has suffered numerous **dangerous, rapidly moving wildfires** since 2015.

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[223] Michelle Bandur, "Rolling blackouts for several Northern California communities called 'mistake,' said Cal ISO," KCRA News 3 [Sacramento, Calif.], Sep. 7, 2022, *https://www.kcra.com/article/rolling-blackouts-lodi-called-mistake-said-cal-iso/41110839*.

[224] Ivan Penn, "Dodging Blackouts, California faces New Questions About Its Power Supply," *New York Times*, Sep. 25, 2022, *https://www.nytimes.com/2022/09/25/business/energy-environment/california-energy-grid-heat.html*.

[225] Martin Espinoza, Alana Minkler, Mary Callahan, and Colin Atagi, "City Hits New Record of 115 Degrees as County Sizzles Amid Heat Wave," *The Press Democrat* [Santa Rosa, Calif.], Sep. 7, 2022, *https://www.pressdemocrat.com/article/news/santa-rosa-sets-new-heat-record-at-115-degrees-as-sonoma-county-sizzles-i/*.

In 2020, California hit a record with **4,304,379 acres burned** in 8,648 wildfires, which also killed 33 people and damaged or destroyed 11,116 structures.[226]

Table 137: California Wildfires, Number of Incidents, Acreage Burned, Structures Damaged or Destroyed, and Fatalities, 2015–2021

Year	Incidents	Acreage Burned	Structures Damaged or Destroyed	Fatalities
2015	8,283	880,899	3,159	7
2016	6,954	669,534	1,274	6
2017	9,270	1,548,429	10,280	47
2018	7,948	1,975,096	24,226	100
2019	7,860	259,823	732	3
2020	8,648	4,304,379	11,116	33
2021	8,835	2,568,948	3,629	3

Source: California Dept. of Forestry and Fire Protection (CAL FIRE), *https://www.fire.ca.gov*

Many of these fires have had direct consequences for the local economy. For example, the Hopland Sho-Ka-Wah Casino, operated by the Hopland Band of Pomo Indians and long a major source of employment in the Hopland area, closed permanently in 2019 after shutting down during the previous year's severe wildfires. Sonoma County lost 2.6 percent of its total housing units because of the 2017 Tubbs Fire, which burned 36,807 acres of southern Alexander Valley, the Cities of Healdsburg and Santa Rosa, and the surrounding countryside.

Most of the major fires within or near the AVH service area are driven by winds of 20 to 40 miles per hour or more. Thus, a fire can spread very rapidly, forcing local residents in their path to make quick decisions regarding whether and when to evacuate; the timing of an evacuation can mean life or death. Worse, during the past seven years, the area has sometimes suffered multiple simultaneous fires (some of which later combined), creating the risk that fleeing one fire could carry evacuees into the path of another.

Evacuations are made all the more difficult by the heavy traffic along busy major transportation corridors such as Highway 101. Evacuations along the two-lane backroads that wind through the service area's hill country, many of which have no alternate routes, are even more dangerous. During 2018's Camp Fire, which burned 153,336 acres of Butte County, fast-moving flames leaped over the two-lane roads on which residents were attempting to evacuate, setting cars and trucks on fire and blocking all movement of vehicles. The Camp Fire remains

[226] California Dept. of Forestry and Fire Protection (CAL FIRE), "2020 Incident Archive," *https://www.fire.ca.gov/incidents/2020/*.

California's deadliest fire of recent years, damaging or destroying 18,804 structures and resulting in 85 fatalities.

Residents of communities not directly threatened by fires may still be severely affected by smoke from distant fires. The smoke from some recent wildfires has spread across half the state, resulting in smoke damage to property as well as elevated risk of respiratory illness due to poor air quality. For example, smoke from 2021's 963,309-acre Dixie Fire, the second-largest wildfire in the state's history, darkened skies and kept people in coastal California indoors for days, even though the fire occurred in Butte, Plumas, Lasse, Shasta, and Tehama Counties, in the eastern part of the state.

AVH service area residents have been repeatedly ordered to shelter in place for a week or more because of toxic smoke from wildfires and the structures and vehicles they consumed.

Even when the smoke is not visible, microscopic particles carried by "drift smoke" can penetrate deep into lung tissue and enter the bloodstream. One study linked wildfire smoke exposure to a twofold increase in the rate of asthma and a 40 percent rise in strokes and heart attacks.[227] Other research has tied fire smoke to increases in hospital admissions, emergency room visits, and premature deaths.[228] In this way, smaller wildfires can have a deleterious impact on public health even if they do not directly cause structure losses or deaths.[229]

Wildfires also cause substantial psychological stress for residents. The threat posed by multiple concurrent fires can be overwhelming, especially given the danger of separate fires merging into huge, extremely risky "complex fire" events, which have become more common in the past five years. Making evacuation preparations, deciding what to take and what to leave (sometimes with little notice), and dealing with the possibility of being separated from family members all adds to the mental and emotional strain.

Evacuations also drain the resources of healthcare providers and county emergency response teams, who need to organize sites where evacuees can gather; provide triage for physical injuries, including smoke inhalation; and arrange for food, shelter, sanitary facilities, and access

[227] Devon Ryan, "Health Impacts of Wildfire Smoke," Stanford Woods Institute for the Environment, Oct. 15, 2020, *https://woods.stanford.edu/stanford-wildfire-research/news/health-impacts-wildfire-smoke*.

[228] Bernard J. Wolfson, "Wildfire smoke poses serious health hazard. But your indoor air can be kept clean," The Washington Post, Oct. 9, 2021, *https://www.washingtonpost.com/health/wildfire-smoke-health-hazards/2021/10/08/1ed50eac-2156-11ec-9309-b743b79abc59_story.html*.

[229] Fay H. Johnston, et al, "Unprecedented Health Costs of Smoke-Related PM-2.5 from the 2019–2020 Australian Megafires," *Nature Sustainability* 2021;4: 42–47. doi:10.1038/s41893-020-00610-5

to communications. In Cloverdale, the Citrus Fair fairgrounds has recently been designated as such a site. AVH's new facility will be built on a site next to the fairgrounds.

Below and on the following pages is a non-exhaustive list of recent fires in and adjacent to the AVH service area.

Table 138: Wildfires Affecting or Near AVH Service Area, 2015

Name	County	Acreage	Remarks
Oasis Fire	Lake	25 acres	
Coveto Fire	Mendocino	35 acres	
Mendocino National Forest Lighting Complex Fire	Mendocino	227 acres	
Jerusalem Fire	Lake and Napa	25,118 acres	
Peterson Fire	Lake	215 acres	
Grade Fire	Lake	22 acres	
Middletown Fire/Valley Fire	Lake, Napa, and Sonoma	76,067 acres	1,955 structures damaged or destroyed, 4 deaths

Source: California Dept. of Forestry and Fire Protection (CAL FIRE), "2015 Incident Archive," *https://www.fire.ca.gov/incidents/2015/*

Table 139: Wildfires Affecting or Near AVH Service Area, 2016

Name	County	Acreage	Remarks
Reservoir Fire	Lake	215 acres	
Foothill Fire	Lake	69 acres	
North Branch Extension Fire	Lake	25 acres	
Clayton Fire	Lake	3,929 acres	
Mockingbird Fire	Lake	20 acres	
Knoxville Fire	Lake	36 acres	

Source: California Dept. of Forestry and Fire Protection (CAL FIRE), "2016 Incident Archive," *https://www.fire.ca.gov/incidents/2016/*

Table 140: Wildfires Affecting or Near AVH Service Area, 2017

Name	County	Acreage	Remarks
Sulphur Fire	Lake	2,207 acres	162 structures damaged or destroyed
Pocket Fire	Lake	14,225 acres	6 structures damaged or destroyed
Redwood Valley Fire	Mendocino	36,523 acres	546 structures damaged or destroyed, 9 deaths
Atlas Fire	Napa and Solano	51,624 acres	120 structures damaged or destroyed, 6 deaths
Nuns Fire	Sonoma and Napa	54,423 acres	1,355 structures damaged or destroyed, 3 deaths
Tubbs Fire	Sonoma and Napa	36,807 acres	5,636 structures damaged or destroyed, 22 deaths

Source: California Dept. of Forestry and Fire Protection (CAL FIRE), "2017 Incident Archive," https://www.fire.ca.gov/incidents/2017/

Table 141: Wildfires Affecting or Near AVH Service Area, 2018

Name	County	Acreage	Remarks
Pallet Fire	Sonoma	10 acres	
Creek Fire	Lake	32 acres	
Pawnee Fire	Lake	15,185 acres	
Peach Fire	Mendocino	90 acres	
Spring 2 Fire	Lake	80 acres	
Carden Fire	Lake	50 acres	
Ranch Fire/Mendocino Complex	Mendocino, Lake, Colusa, and Glenn	459,123 acres	280 structures damaged or destroyed, 1 death; third-largest fire in California history
Eel Fire	Mendocino	972 acres	
Western Fire	Mendocino	106 acres	
Cache Fire	Lake	103 acres	
Kelsey Fire	Lake	24 acres	
Ridge Fire	Lake	36 acres	
Grade Fire	Lake	60 acres	
Brushy Fire	Mendocino	35 acres	

Source: California Dept. of Forestry and Fire Protection (CAL FIRE), "2018 Incident Archive," https://www.fire.ca.gov/incidents/2018/

Table 142: Wildfires Affecting or Near AVH Service Area, 2019

Name	County	Acreage	Remarks
Eagle Fire	Lake	75 acres	
Burris Fire	Mendocino	703 acres	
Wilson Fire	Mendocino	10 acres	
Oak Fire	Lake	53 acres	
Moose Fire	Mendocino	225 acres	
Golf Fire	Lake	20 acres	
Usal Fire	Mendocino	130 acres	
Kincade Fire	Sonoma	77,758 acres	374 structures damaged or destroyed; largest fire in Sonoma County history

Source: California Dept. of Forestry and Fire Protection (CAL FIRE), "2019 Incident Archive," https://www.fire.ca.gov/incidents/2019/

Table 143: Wildfires Affecting or Near AVH Service Area, 2020

Name	County	Acreage	Remarks
Nash Fire	Mendocino	10 acres	
Gulch Fire	Sonoma	107 acres	
Lakeville Fire	Sonoma	141 acres	
Vineyard Fire	Mendocino	151 acres	
Hopland Fire	Mendocino	34 acres	
Mina Fire	Mendocino	177 acres	

Name	County	Acreage	Remarks
August Complex Fire	Mendocino, Humboldt, Trinity, Tehama, Glenn, Lake, and Colusa	1,032,458 acres	935 structures damaged or destroyed, 1 death; largest fire in California history
LNU Lightning Complex Fire	Napa, Sonoma, Lake, Yolo, and Solano	363,220	1,491 structures damaged or destroyed, 6 deaths; fifth-largest fire in California history
Creek Fire	Mendocino	820 acres	
Oak Fire	Mendocino	1,100 acres	25 structures damaged or destroyed
Glass Fire	Napa and Sonoma	67,484 acres	1,555 structures damaged or destroyed

Source: California Dept. of Forestry and Fire Protection (CAL FIRE), "2020 Incident Archive," *https://www.fire.ca.gov/incidents/2020/*

Table 144: Wildfires Affecting or Near AVH Service Area, 2021

Name	County	Acreage	Remarks
Turnout Fire	Mendocino	200 acres	
Tomki Fire	Mendocino	18 acres	
Broiler Fire	Mendocino	80 acres	
Hopkins Fire	Mendocino	257 acres	
Lowell Fire	Napa	132 acres	

Source: California Dept. of Forestry and Fire Protection (CAL FIRE), "2021 Incident Archive," *https://www.fire.ca.gov/incidents/2021/*

Table 145: Wildfires Affecting or Near AVH Service Area, 2022 (Year to Date)

Name	County	Acreage	Remarks
Owens Fire	Mendocino	36 acres	
Roblar Fire	Sonoma	63 acres	
Nome Fire	Mendocino	20 acres	
Meadow Fire	Mendocino	17 acres	
Bell Fire	Napa	43 acres	
Point Fire	Lake	14 acres	

Source: California Dept. of Forestry and Fire Protection (CAL FIRE), "2022 Incident Archive," *https://www.fire.ca.gov/incidents/2022/*

The economic aftermath of California's increasingly severe fire seasons is difficult to overstate. Major fires can be devastating to individual residents, who may lose their homes and businesses, and the cost of fighting wildfires can severely impact state and local budgets.

The nonprofit organization United Policyholders (UP) notes that the devastation wildfires wreak on property can be particularly costly. The extreme heat of these fires often damages foundations as well as walls and roofs, making rebuilding more expensive, and much of the rubble and debris is toxic, complicating cleanup efforts.

UP surveys of households impacted by major fires have shown that between two-thirds and three-quarters of victims are underinsured. For example, a survey conducted after the Camp Fire in November 2018 found that only about one-third of that fire's victims had sufficient insurance coverage to enable them to rebuild their homes or commercial buildings, sometimes leaving the future of whole communities in doubt.[230] In a follow-up survey conducted 24 months after the Camp Fire,[231] 42 percent of respondents said they had decided not to rebuild.

Settling insurance claims can also be challenging for victims, who complain that insurers are often slow to respond or to pay claims. Also, because many of the major fires have triggering causes such as faulty electrical equipment, fireworks, or arson, efforts to repair lost property may become entangled in lengthy investigations and costly lawsuits.

For insurance carriers, California's wildfires have been a financial nightmare, which has prompted major reevaluations of where carriers will and will not provide coverage. In some cases, this has resulted in cancellation of coverage not only for those who have suffered losses due to wildfires, but also for thousands of others who have filed no claims. These cancellations have threatened homeowners' ability to obtain mortgages, since property insurance is a requirement of a home loan.[232]

California is one of more than 30 states that offer Fair Access to Insurance Requirements (FAIR) coverage programs for homeowners who are not able to obtain private insurance because they are in high-risk areas.[233] Considered temporary insurance until other coverage can be found, a FAIR Plan policy only covers fire, lightning, internal explosion, and smoke damage, not other homeowner liability risks. FAIR Plan policies can also be very expensive; premiums currently

[230] Emily Schmidt, "Insurance Aflame: Coverage Inequities Rag as Population Grows in Wildfire Regions," APM Research Lab and Ten Across Initiative, housed at Arizona State University, Aug. 19, 2022, *https://www.apmresearchlab.org/10x-fire-insurance*.

[231] United Policyholders, "Camp Fire (Paradise, CA) Survey Report: Recovery status at Year Two," January 2021, *https://uphelp.org/wp-content/uploads/2021/05/year_2_camp_fire_survey_report_v1.pdf*.

[232] California Dept. of Insurance, Insurance Commissioner's Office, "Fact Sheet: Impact of Wildfires on Insurance Non-Renewals and Availability," 2019, *https://www.insurance.ca.gov/0400-news/0100-press-releases/2019/upload/nr063_factsheetwildfire.pdf*.

[233] See the California FAIR Plan website: *https://cfpnet.com*.

average around $3,200 year.[234] The California Department of Insurance says the cost of premiums rose 177 percent between 2015 and 2018.[235]

The massive economic losses caused by these wildfires has also had other far-reaching economic consequences beyond the costs of repairing or replacing individual structures. The loss of housing due to wildfires has driven up rent prices and driven out many lower-income community members, including employees needed to operate local businesses.

FLOODING

The Russian River has a watershed of almost 1,500 square miles in Sonoma and Mendocino Counties, and is susceptible to seasonal flooding at many points, particularly where the river passes through the Coastal Range before reaching the Pacific Ocean at Jenner.

Even during the current drought period, the Russian River has flooded at various points. For example, in February 2019, the river crested at 14 feet above flood stage, creating a period of particularly widespread flooding.

Paradoxically, seasonal flooding tends to be more severe during droughts and wildfire conditions: Loss of vegetation can make it harder for dry soil to absorb rain and increases the risk of mudslides.[236]

Flooding can cause not only property damage, but also a variety of health hazards. Flood waters may spread bacteria (like the cyanobacteria that is proliferating due to drought conditions) and other contaminants, promote the growth of mold and mildew, and create pools of stagnant water that become breeding grounds for mosquitos and other disease-carrying insects.

Climate change is exacerbating seasonal flooding dangers by causing more precipitation to fall in the mountains as rain rather than snow. However, that could be only the beginning. Some projections suggest that the area may be at risk of a "megaflood" like the one that last occurred in 1861–1862, an event so severe that it temporarily created a 6,000 square mile inland sea in

[234] According to California FAIR Plan PR representative Phil Irwin, interviewed by Hilda Flores for KCRA News 3 [Sacramento, Calif.], July 12, 2022, *https://www.kcra.com/article/california-fair-plan-wildfire-insurance-what-is-it-how-can-i-get-it/40574517*.

[235] California Dept. of Insurance, Insurance Commissioner's Office, "Fact Sheet: Impact of Wildfires on Insurance Non-Renewals and Availability."

[236] Amy Graff, "Interactive flood map of Russian River identifies river levels, road closures, more," *SFGate*, Feb. 26, 2019, *https://www.sfgate.com/weather/article/flood-map-Russian-River-Sonoma-County-Guerneville-13647584.php*.

the Sacramento and San Joaquin valleys.[237] A recent study warns that the likelihood of such an event will continue increase as global temperatures rise.[238]

Epidemics & Pandemics

2009 H1N1 EPIDEMIC

Alexander Valley Healthcare's first experience with a pandemic was the 2009 H1N1 influenza A "swine flu" pandemic. During that pandemic, AVH and other community health centers in the region collaborated with Sonoma County public health officials to launch a testing program and care for persons infected by the virus. The CHCs also stocked up on personal protective equipment (PPE) such as N95 respirators, learned to size and fit-test masks, and developed staff and patient safety protocols. AVH set up temporary shelters in which symptomatic patients could be tested, using protocols supplied by the CDC and Sonoma County, and following patient flow, testing, and follow-up protocols adopted by AVH.

This initial experience with responding to an epidemic helped AVH staff plan for future pandemics. For example, AVH reports that it did not experience the shortage of PPE that other providers did in the first year of the COVID-19 public health emergency, thanks in large part to supply practices established for the H1N1 epidemic.

COVID-19 PUBLIC HEALTH EMERGENCY

Oakland, California, in the eastern San Francisco Bay Area, and Seattle, Washington, were the first known COVID-19 entry points on the West Coast of the United States. Because of their proximity to the Bay Area, state and local public health officials in the North Bay counties of Marin, Sonoma, Napa, Mendocino, and Lake began gathering information on the new COVID-19 virus outbreaks soon afterward.

FQHCs in Oakland ramped up their COVID-19 testing and safety protocols, and by January were communicating these testing and safety protocols to other FQHCs statewide. Public information

[237] Mary Callahan, "'Megaflood' warnings resonate in Sonoma County, where historic floods have hit home," *The Press Democrat* [Santa Rosa, Calif.], Aug. 19, 2022, https://www.pressdemocrat.com/article/news/megaflood-warnings-resonate-in-sonoma-county-where-flooding-has-been-a-r/.

[238] Xingying Huang and Daniel L. Swain, "Climate change is increasing the risk of a California megaflood," *Science Advances* 2022;8(32). doi:10.1126/sciadv.abq0995

began to be circulated by public health officials around the same time. California Gov. Gavin Newsom officially declared a state of emergency on March 4, 2020.[239]

Initial COVID-19 Response

AVH arranged its first COVID-19 test on Dec. 29, 2019. That test was negative, but the health center began its advanced preparations, informed by past experience with the 2009 H1N1 epidemic. AVH recorded its first positive tests for COVID-19 in March 2020.

Sonoma County's Department of Health Services has little direct service capacity, and most of it is small-scale, highly specialized units located in Santa Rosa. For this reason, public health officials reached out to the county's FQHCs, including Alexander Valley Healthcare, to request that they set up community testing sites in addition to testing their own patients.

As the sole medical provider in its service area, this presented AVH with a logistical challenge. The small size and layout of AVH's medical facility made it difficult to reorganize in-clinic patient flow to separate COVID-19 testing for large numbers of symptomatic people from the flow of patients seeking other services. This space limitation slowed the health center's initiation of testing. However, AVH leased an additional space and equipped it to act as a COVID-19 community testing site, with training and supplies supplied by the county, but run by AVH staff.

At this point in the emergency, reliable information on COVID-19 was often difficult for community members to find. Although the county made information available through its website and social media, this required the public to proactively seek those resources.

The situation changed quickly in on March 19, 2020, when Gov. Newsom issued the first statewide "shelter-in-place" order. This coincided with similar orders issued by various cities and counties, including Sonoma, Mendocino, and Lake Counties. Nonessential businesses were ordered to close unless they could operate remotely, and healthcare providers were ordered to focus only on urgent health needs. With the concurrence of the California Dental Association, dental offices were close for all but emergency services. Almost overnight, about 3 million Californians lost their jobs.[240] (Many jobs have since returned, but some sectors of the local economy have still not fully recovered, as discussed in the Service Area chapter.)

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[239] The full text of that initial order is available at *https://www.gov.ca.gov/wp-content/uploads/2020/03/3.4.20-Coronavirus-SOE-Proclamation.pdf*.

[240] According to the governor's office, the state lost 2,758,900 nonfarm jobs in March and April 2020. See the press release dated April 15, 2022: *https://www.gov.ca.gov/2022/04/15/californias-economic-recovery-continues-to-rebound/*.

Opposition to the lockdown measures was immediate, which fanned the flames of COVID-19 misinformation (and disinformation), leading to resistance to infection control measures like mask requirements, and, in some areas, a reluctance to enforce those rules.

The rationale for the lockdown orders was that California had too few hospital and ICU beds to withstand an uncontrolled pandemic. The orders were not successful in preventing a hospital capacity crisis in all areas of the state, but in Sonoma County, the stay-at-home orders and mask mandate succeeded in limiting the worst of the pandemic. Hospitalizations exceeded 50 percent of hospital capacity only a handful of times over the first two years of the emergency.

COVID-19 Testing and Patient Care

For Sonoma County patients with a regular source of care, information regarding COVID-19 testing was available from their primary care provider. For the 45 percent of low-income uninsured patients without a regular source of care, finding that information and accessing testing was significantly harder. Not all private practices in Sonoma, Mendocino or Lake Counties were open to new patients during the early phase of the pandemic, and even fewer were open to uninsured patients. FQHCs became a critical force for informing and testing low-income area residents.

Reaching out quickly to patients and the community regarding the availability of COVID-19 testing, and later the availability of vaccines, was made more difficult by the large numbers of patients who were intermittent users of services and lacked a clear “medical home” connection to AVH or other providers. Patients who were intermittent or episodic users of health services appear to have had less confidence in reaching out for assistance and less awareness of what services were open. Those intermittent patients were also more frequently unsure about how to access care or whether they needed to go to a hospital emergency department to be tested.

Such confusion was rarer in patients seen one or more times every year, who were also far more likely to consider themselves to have established a “medical home” with AVH or another community health center. Additionally, those patients were far more likely to understand how to use the phone system, the patient portal, or email to contact staff or providers.

Data from AVH and its peer FQHCs echoes Sonoma County data, which indicates that Hispanic patients tested positive for COVID-19 much more often (16 percent) than did non-Hispanic patients tested (9 percent).

Table 146: AVH COVID-19 Test Results by Ethnicity and Test Result, March 2020 through July 2022

Ethnicity	Negative Results	Positive Results	Total Tests	Percent Positive
Hispanic	1,099	204	1,303	16%
Non-Hispanic	1,030	101	1,131	9%
Refused to Report	395	39	434	9%
Total	**2,524**	**344**	**2,868**	**12%**

Source: AVH data, including patients and nonpatients tested at AVH.

Despite the precautions taken by AVH to ensure separation of symptomatic patients, many regular patients, particularly older patients and those with pre-existing health conditions, developed serious reservations about the safety of returning to in-person services even after "shelter-in-place" orders were lifted.

This fears were compounded by the fact that many people in the community refused to wear masks, or stopped wearing them after initial cautions were lifted, which has left some vulnerable people in the service area and throughout California with considerable insecurity about being in public spaces.

COVID-19 Vaccination

When COVID-19 vaccines became available under FDA Emergency Use Authorization in late 2020, Sonoma County once again called on AVH and other FQHCs in the county to mount community vaccination efforts.

AVH's limited facilities necessitated that large scale vaccine administration had to be set up offsite. AVH chose to develop a drive-through community vaccination site at the Cloverdale train station parking lot, capable of administering and recording vaccinations to the occupants of 13 cars at a time. More than 11,000 vaccinations were administered by AVH staff at these sites, in partnership with grassroots outreach groups, in particular Resilient Cloverdale. AVH and three other FQHCs that serve migrant, seasonal, and year-round agricultural workers also mounted a joint effort that vaccinated more than 1,000 farmworkers.

As of Oct. 2, 2021, 87.7 percent of the eligible population (aged 12 or older) of Cloverdale (ZIP Code 95425) were fully vaccinated, 9 percent were partially vaccinated, and only 3.4% were

unvaccinated. In Geyserville (ZIP Code 95441), 89 percent of the eligible population was fully vaccinated and 11 percent partially vaccinated as of that date.[241]

Table 147: AVH Community COVID-19 Vaccine Program Results by Ethnicity, Dec. 1, 2020 to Dec. 31, 2021

Ethnicity of Person Vaccinated	Total Persons Vaccinated	Total Doses Administered
Hispanic or Latino	2,610	4,754
Non-Hispanic/Latino	3,440	6,622
Other	575	678
Refused to Report	462	881
Total	**7,087**	**12,935**

Source: AVH data, including patients and nonpatients vaccinated by AVH

All of the federally qualified health centers in Sonoma County have mounted mass vaccination efforts. As of December 1, 2022, the county's community health centers had distributed a total of 220,349 COVID-19 vaccine doses, second only to the 329,447 vaccine doses distributed by Kaiser Permanente, the largest private insurer in the county.[242]

According to the state's COVID-19 dashboard, as of Dec. 2, 2022, 72.4 percent of all California residents have completed primary series COVID-19 vaccination and 60.3 percent of all Californians have also received at least one booster dose.[243]

In Sonoma County, 79.3 percent of all residents had completed the primary series and 67.3 percent had received at least one booster dose as of Dec. 2, 2022, significantly better than the statewide rates.[244] Both Mendocino County and Lake County still lag well behind the state and Sonoma County in overall vaccination rates.

Examining vaccination data by age group reveals that statewide and in Sonoma, Mendocino, and Lake Counties, COVID-19 vaccination rates are highest among residents aged 50 and older.

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[241] Sonoma County COVID-19 Data Dashboard, *https://socoemergency.org/emergency/novel-coronavirus/coronavirus-cases/*.

[242] Ibid.

[243] California Dept. of Public Health, via California All, *https://covid19.ca.gov/vaccination-progress-data/*. As of July 13, 2022, the state is reporting vaccination progress data as a percentage of total population rather than of vaccination-eligible population, so current vaccination percentages are not directly comparable with earlier data.

[244] The vaccination percentages presented in the state and county data dashboards differ somewhat, perhaps reflecting delays in data availability and variations in methodology for estimating population size. As of Dec. 5, 2022, the Sonoma County dashboard estimates that 79 percent of the county's population is fully vaccinated and that 67.4 percent of residents eligible for a booster (i.e., aged 5 or older) have received at least one booster dose.

In both Mendocino and Lake Counties, vaccination rates for adults aged 18–49 are substantially lower than the state average, particularly in Lake County — only 54.9 percent of Lake County residents 18–49 have completed the primary vaccination series.

Both at the state level and in Sonoma, Mendocino, and Lake Counties, vaccination rates for children under 12 remain low, although it has now been nearly a year since the CDC expanded eligibility to include children 5–11, and over three months since eligibility was expanded to include children as young as 6 months.[245]

In Mendocino and Lake Counties, vaccination rates for adolescents (12–17) are also much lower than in Sonoma County or California as a whole.

This data suggests a need for ongoing vaccination outreach efforts focusing on pediatric COVID-19 vaccination, including booster doses. (The CDC now recommends that everyone 5 and older receive a booster dose several months after completing the primary series.[246])

Table 148: Residents Who Have Completed Primary Series COVID-19 Vaccination and Received One or More Booster Doses by Age Group, California and Select Counties, Percentages

Vaccination Status and Age Group	California	Sonoma County	Mendocino County	Lake County
PRIMARY SERIES, ALL AGE GROUPS	**72.4%**	**79.3%**	**68.5%**	**56.0%**
Completed primary series, residents under 5	6.6%	11.4%	2.0%	0.6%
Completed primary series, residents 5–11	37.%%	51.3%	26.2%	13.9%
Completed primary series, residents 12–17	67.3%	77.2%	56.4%	39.3%
Completed primary series, residents 18–49	78.3%	81.2%	69.8%	54.6%
Completed primary series, residents 50–64	84.2%	85.7%	81.2%	75.4%
Completed primary series, residents 65+	87.4%	91.6%	90.5%	75.35%
PRIMARY & BOOSTED, ALL AGE GROUPS	**60.3%**	**67.3%**	**59.5%**	**54.4%**
Primary series and boosted, residents 5–11	25.3%	25.4%	14.3%	7.3%
Primary series and boosted, residents 12–17	40.7%	46.7%	34.6%	22.0%
Primary series and boosted, residents 18–49	54.9%	58.7%	46.6%	40.6%
Primary series and boosted, residents 50–64	68.9%	76.3%	66.8%	59.0%
Primary series and boosted, residents 65+	79.0%	85.7%	80.0%	74.0%

Source: California Dept. of Public Health, vaccination data as of Dec. 2, 2022, via California All, https://covid19.ca.gov/vaccination-progress-data/. "Boosted" means having received one or more booster doses in addition to completing the primary series.

[245] The CDC and the Advisory Committee on Immunization Practices (ACIP) recommended COVID-19 vaccination for children 5–11 on Nov. 2, 2021, and for children aged 6 months to 5 years on June 18, 2022.

[246] See the CDC press release dated May 19, 2022: https://www.cdc.gov/media/releases/2022/s0519-covid-booster-acip.html.

AVH Staff Impact

The pandemic required AVH to:

- Convert from in-person to telehealth visits for a large percentage of its medical and behavioral health visits.
- Establish additional EHR data connections to allow providers and other staff to work from home or other remote locations.
- Suspend some nonemergency services to comply with government orders.
- Establish safe COVID-19 testing and reporting capacity for patients, away from non-COVID-19 patients seeking routine care.
- Prepare for the COVID-19 vaccination program.

While AVH successfully completed each of these steps, this effort was not without its costs. The workload and risks of the pandemic placed an oversized burden on AVH's undersized staff, contributing to AVH losing multiple clinical providers and support staff during 2020 and 2021. (See the Service Patterns chapter for details about the impact of provider turnover.) This turnover resulted in recruitment expenses and declines in care volume before new providers could begin, as well as magnifying the strain on remaining staff. For AVH patients who had built strong relationships with particular providers, the loss of those providers also proved stressful, adding to the overall impact of the public health emergency.

Community Impact of COVID-19

Between April 2020 and June 18, 2021, there were 31,000 diagnosed cases of COVID-19 in Sonoma County. Six percent of Sonoma County residents were known to have been infected, and there were 316 deaths due to COVID-19, representing a case fatality rate of approximately 1 percent.

By Dec. 7, 2022, total known cases in Sonoma County had reached 110,495, and more than one in five Sonoma County residents (21.7 percent) had had a known COVID-19 infection. Approximately 523 residents had died of COVID-19 since the pandemic began, for an overall case fatality rate of approximately one-half percent (0.05 percent). The fact that the county's case fatality rate declined even as the total number of cases tripled is further support for the conclusion that **vaccination efforts saved lives.**

However, that does not mitigate the disproportionate impact on the county's Hispanic population, who experienced 43 percent of the cases, 30.8 per cent of the hospitalizations, and 30.1 percent of COVID-19 deaths, despite comprising only 28.7 percent of the population.[247]

Table 149: COVID-19 Cases by Race/Ethnicity, Sonoma County, April 2020 to December 2022

Race/Ethnicity	Number of Cases	Percentage of Cases	Percentage of Population
White, non-Hispanic	46,293	48%	59.3%
Hispanic/Latino	41,481	43%	28.7%
Asian, non-Hispanic	4,204	4%	4.6%
Black/African American, non-Hispanic	1,878	2%	1.5%
Multi-racial, non-Hispanic	1,436	1%	5.0%
American Indian/Alaska Native, non-Hispanic	740	1%	0.6%
Native Hawaiian and other Pacific Islander, non-Hispanic	602	1%	0.3%
Other, non-Hispanic	5,552	N/A	N/A
Unknown	8,309	N/A	N/A
Total	**110,495**		

Source: Sonoma County COVID-19 Dashboard, *https://socoemergency.org/emergency/novel-coronavirus/coronavirus-cases/*, as of Dec. 7, 2022

While Sonoma County instituted an extensive COVID-19 contact tracing effort, 60 percent of all cases had no known source of transmission, suggesting the likelihood of transmission by asymptomatic carriers. Cases with a work-related source of transmission were most often in fields with high percentages of Hispanic staff: healthcare, manufacturing, caregiving/personal help, agriculture, food and beverage production, public safety, sanitation and public works, cleaning and janitorial services, transportation, construction, and landscaping.

Overall, Sonoma County COVID-19 cases were widely distributed across age ranges.

Table 150: COVID-19 Cases by Age Group, Sonoma County, April 2020 to September 2022

Age Group	Number of Cases	Percentage of All Cases
Under 5	4,126	4%
5–17	16,880	16%
18–24	12,484	12%
25–34	18,852	18%
35–44	17,616	16%
45–54	14,144	13%
55–64	11,195	10%
65–74	6,892	6%
75 and older	4,931	5%
Unknown	15	
Total	**107,135**	

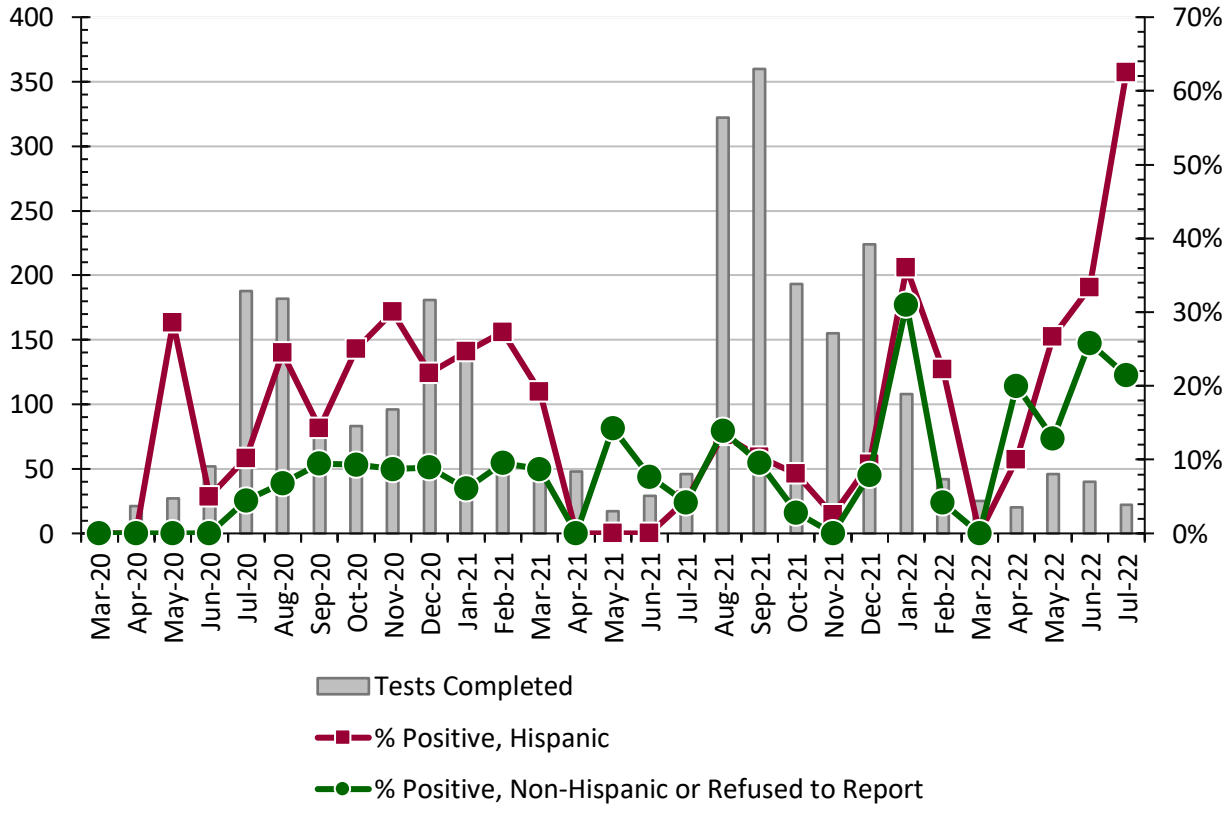
[247] Ibid.

Source: Sonoma County COVID-19 Data Dashboard, https://socoemergency.org/emergency/novel-coronavirus/coronavirus-cases/. In late 2022, the dashboard was revised to show only percentages, not counts, of cases by age group, so no newer detailed breakdown is available.

The COVID-19 pandemic is hardly over, despite social, economic, and political pressure to rescind restrictions like mask requirements and the public's desire to return to the pre-pandemic status quo. While widespread vaccination has reduced the severity of COVID-19 infection, the state continues to record thousands of new cases each day and hundreds of new deaths each month. New viral strains like the Delta and Omicron variants continue to appear, leading to increasing numbers of "breakthrough cases" in people who have been fully vaccinated and who may have already recovered from one or more COVID-19 infections. This has led to a number of resurgences of COVID-19 cases, most recently in the summer of 2022.

In the summer 2022 surge, as in previous phases, AVH's Hispanic patients were more likely than non-Hispanic patients to have a positive COVID-19 test result, although the gap has generally been narrower. The following chart illustrates the trends in testing and positive test results.

Figure 20: AVH COVID-19 Testing, Number of Tests Administered and Percentage of Positive Results Among Hispanic and Non-Hispanic Patients, March 2020 to July 2022



As shown in the following table, the percentage of positive COVID-19 tests rose significantly beginning in April 2022, although the total number of tests performed was much smaller than during the winter 2021–2022 surge.

Table 151: AVH COVID-19 Testing, Number of Tests Administered and Percentage of Positive Results Among Hispanic and Non-Hispanic Patients, March 2020 to July 2022

Month	Tests Completed	Percent Positive, Hispanic	Percent Positive, Non-Hispanic or Refused to Report
March 2020	7	0.0%	0.0%
April 2020	21	0.0%	0.0%
May 2020	27	28.6%	0.0%
June 2020	52	5.0%	0.0%
July 2020	188	10.2%	1.5%
August 2020	182	24.5%	3.4%
September 2020	88	14.3%	5.3%
October 2020	83	25.0%	9.7%
November 2020	96	30.0%	8.6%
December 2020	181	21.7%	8.9%
January 2021	135	24.6%	0.0%
February 2021	54	27.3%	0.0%
March 2021	49	19.2%	6.3%
April 2021	48	0.0%	0.0%
May 2021	17	0.0%	0.0%
June 2021	29	0.0%	0.0%
July 2021	46	4.5%	5.9%
August 2021	322	13.3%	15.8%
September 2021	360	10.4%	11.7%
October 2021	193	8.0%	3.0%
November 2021	155	2.5%	0.0%
December 2021	224	9.4%	9.3%
January 2022	108	36.0%	31.0%
February 2022	42	22.2%	4.8%
March 2022	25	0.0%	0.0%
April 2022	20	10.0%	22.2%
May 2022	46	26.7%	10.5%
June 2022	40	33.3%	43.8%
July 2022	22	62.5%	40.0%

Source: AVH EHR data

The future course of the COVID-19 public health emergency may depend on the successful deployment of new vaccine boosters designed to protect against newer variants of the virus as well as the earlier strains. However, key questions remain, including whether the public will actually receive these new vaccines. The relatively low percentage of the population under age 65 who have received the existing boosters is not encouraging in this regard.

A further question is for how long the federal government will continue to underwrite the cost of vaccination. Even if the vaccines and boosters continue to be covered by private insurance and public payers such as Medicare and Medicaid, COVID-19 vaccination and revaccination rates will likely drop significantly if uninsured patients must pay for the vaccines and boosters out of pocket.

MONKEYPOX (MPOX)

On Aug. 1, 2022, Gov. Newsom declared a state of emergency relating to an ongoing monkeypox (mpox) outbreak in California.[248]

By Aug. 2, 2022, the California Department of Public Health had reported 1,135 cases of probable or confirmed mpox cases. By Sep. 30, 2022, the number of cases had risen to 5,010, including 44 cases in Sonoma County.[249] Since then, the number of new mpox cases has declined significantly. As of Dec. 2, 2022, the cumulative statewide total is 5,604 cases. Of those, only 235 (4.2 percent) are known to have involved hospitalization.[250]

Monkeypox is a zoonotic viral infection, caused by an orthopoxvirus similar to smallpox. As the name suggests, it was originally identified in monkeys in the late 1950s, with the first human cases recorded in 1970. The disease has been common in some areas of central and western Africa for many years, but has been very rare in the United States.[251]

Mpox is not as severe or as contagious as smallpox, and the case fatality rate of the West African clade involved in the recent U.S. outbreak is low. However, infection can be very painful, and the rash and lesions can lead to secondary infections and/or permanent scarring.

Although many of the recent cases in California were apparently spread through sexual contact, it is important to emphasize that mpox is *not* primarily a sexually transmitted infection. As with the more common chickenpox, the monkeypox virus is transmitted through respiratory droplets and/or contact with the skin lesions or their vesicular fluid. Thus, while mpox can

[248] Office of Gov. Gavin Newsom, "Governor Newsome Proclaims State of Emergency to Support State's Response to Monkeypox," Aug. 1, 2022, *https://www.gov.ca.gov/2022/08/01/74502/*.

[249] California Dept. of Public Health, Division of Communicable Disease Control, "Mpox Data in California," *https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Monkeypox-Data.aspx*.

[250] Ibid.

[251] World Health Organization, "Fact Sheet: Monkeypox," May 19, 2022, *https://www.who.int/news-room/fact-sheets/detail/monkeypox*.

spread through sexual contact, it can also be transmitted through nonsexual close contact with an infected person, or through contact with contaminated surfaces.[252]

Table 152: Reported Probable or Confirmed Mpox Cases by Race/Ethnicity, California

Race/Ethnicity	Number	Percent of Known
Hispanic or Latino	2,277	45.0%
White	1,609	31.8%
Black or African American	657	13.0%
Asian	294	5.8%
Multiple or Other Races	177	3.5%
Native Hawaiian or Other Pacific Islander	25	0.5%
American Indian or Alaska Native	22	0.4%
Unknown	543	
Total	**5,604**	

Source: California Dept. of Public Health, Division of Communicable Disease Control, as of Dec. 2, 2022

Recent mpox cases involve mostly non-elderly adult men, with the largest percentage of cases occurring among Hispanic and white adult men. However, available information about the mode of transmission suggests that the demographics of the present outbreak are reflective of the disease spreading through the affinity networks of the people initially infected, rather than any specific risk factors of the mpox virus itself.

Table 153: Reported Probable or Confirmed Mpox Cases by Age Groups, California

Age Group	Number of Cases	Percentage
16 or younger	15	0.3%
16–24	413	7.4%
25–34	2,098	37.4%
35–44	1,821	32.5%
45–54	859	15.3%
55–64	352	6.3%
65+	46	0.8%
TOTAL	**5,604**	**100.0%**

Source: California Dept. of Public Health, Division of Communicable Disease Control, as of Dec. 2, 2022

The JYNNEOS vaccine is FDA-approved for the prevention of both mpox and smallpox, and local health departments have been making the vaccine available for free to individuals deemed to

[252] John P. Thornhill et al, "Monkeypox Virus Infection in Humans across 16 Countries — April–June 2022," *New England Journal of Medicine* 2022;387:679–691. doi:10.1056/NEJMoa2207323

be at high risk of mpox. As of Dec. 2, 2022, 278,545 doses had been administered in California. (The complete vaccination series requires two doses, administered about a month apart.)[253]

The CDC has also launched an Investigational New Drug (EA-IND) "compassionate use" protocol to permit treatment of mpox with tecovirimat (TPOXX), an antiviral medication previously approved by the FDA for the treatment of smallpox. Tecovirimat's availability is currently limited, but expanding its use was one of the goals of the governor's emergency declaration.[254]

Health Data Breaches

As healthcare has become increasingly dependent on electronic databases, the danger of data breaches that expose patient information has risen.[255] The number of Americans whose health records have been affected by data breaches **has risen from 5.3 million people in 2017 to 49.9 million people in 2021**. The number of data breaches in 2022 is likely to equal or top 2021.[256]

Table 154: Individuals Whose Unsecured Digital Health Records Have Been the Subject of a Reportable Data Breach, United States, 2017–2022

Year	Individuals Affected, U.S.
2017	5.3 million
2018	14.2 million
2019	45.0 million
2020	34.4 million
2021	49.9 million
2022	31.1 million*

Source: U.S. Dept. of Health and Human Services, Office for Civil Rights, Breach Portal, https://ocrportal.hhs.gov/ocr/breach/breach_report.jsf. Data reflects reported breaches of protected health information affecting 500 or more individuals. * Reported through Sep. 30, 2022.

Healthcare data breaches can take a variety of forms, including "phishing" attacks (using fraudulent email or text messages to trick legitimate users into revealing passwords or other access credentials); exploits that take advantage of software vulnerabilities or flawed security

[253] California Dept. of Public Health, "Mpox Questions and Answers," Dec. 2, 2022, https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Monkeypox-Questions-and-Answers.aspx.

[254] Centers for Disease Control and Prevention, "Monkeypox: Guidance for Tecovirimat Use," Sep. 15, 2022, https://www.cdc.gov/poxvirus/monkeypox/clinicians/Tecovirimat.html.

[255] Ben Leonard, "Health Data Breaches Swell in 2021 Amid Hacking Surge," *Politico*, March 23, 2022, https://www.politico.com/news/2022/03/23/health-data-breaches-2021-hacking-surge-politico-00019283.

[256] Ben Leonard, "Hackers have laid Siege to U.S. Health Care and a Tiny HHS Office is Buckling Under the Pressure," *Politico*, Aug. 28, 2022 https://www.politico.com/news/2022/08/28/hackers-have-laid-siege-to-u-s-health-care-and-a-tiny-hhs-agency-is-buckling-under-the-pressure-00053941.

practices (like failure to change a default password); and the loss or theft of laptops or other devices containing health information. Some breaches still involve the theft of paper records.

Not all data breaches involve a hack or outside intrusion. Accidentally sending protected information to the wrong recipient or inadvertently making health information public can also constitute a breach.

Healthcare information is a high-value target for hackers and thieves. Stolen health information can be used to file false Medicare claims, fraudulently obtain prescription drugs, or commit identity theft. Hackers can also sell the stolen data on the dark web.

Additionally, the healthcare industry is particularly vulnerable to "ransomware" — a type of malware attack that renders the target's data inaccessible until the target pays the attacker to unlock it — because even brief interruptions in care can result in serious harm to patients.[257]

The scope of the threat is massive and the consequences of breaches severe. According to a 2021 survey by the Healthcare Information and Management Systems Society (HIMSS),[258] more than two-thirds of healthcare organizations had a "significant" incident in the previous year — mostly involving phishing or ransomware attacks.

One of the larger ransomware attacks in 2022 was made against Partnership HealthPlan of California, the Medi-Cal HMO through which AVH contracts to see Medi-Cal patients. The incident reportedly affected the data of 854,913 individuals. Other major data breaches in California this year have included SAC Health System (which suffered a storage facility break-in involving 149,940 patients' data) and Alameda Health System (which suffered unauthorized email account access that involved 90,000 patients' data).[259]

Such attacks can have significant financial consequences for healthcare providers, insurers and business associates, including the possibility of fines under the Health Insurance and Portability and Accountability Act (HIPAA). As of March 17, 2022, HIPAA fines can be up to $1,919,173 per year, adjusted annually for inflation. Covered entities or business associates can be fined even if

[257] Ibid.

[258] Healthcare Information and Management Systems Society, *2021 HIMSS Healthcare Cybersecurity Survey Report*, Jan. 28, 2022, *https://www.himss.org/resources/himss-healthcare-cybersecurity-survey*.

[259] "May 2022 Healthcare Data Breach Report," *HIPAA Journal*, June 21, 2022, *https://www.hipaajournal.com/may-2022-healthcare-data-breach-report/*.

a breach was not the result of willful negligence, and may also be subject to liability under various state laws.[260]

Alexander Valley Healthcare has had detailed staff protocols to protect patient data and its computer systems for as long as it has had electronic health record systems. More recently, AVH has conducted several computer data safety assessments, engaging expert consultants to assess AVH's vulnerability to hacking and making changes to close potential gaps in security.

Staff are trained in IT safety protocols upon hiring and at least annually thereafter. The organization also runs periodic drills to test adherence to those protocols.

To ensure that it can quickly reestablish its patient and accounting records after a natural disaster or data breach, AVH maintains encrypted copies of its entire electronic data records at secured locations both outside the area and out of state.

Preparing for Disasters

Given the variety of types of natural and man-made disasters to which its service area may be exposed, AVH's emergency planning focuses on key components of disaster response, including:

- Collaboration with local community organizations in planning for disasters and other emergencies, and responding in emergencies.
- Regularly testing emergency back-up communications, including AVH's phone tree connections to staff and ham radio connections to first response units.
- Regular tests of the AVH backup generator, to ensure power to continue operations and electronic access to patient records, outside labs and pharmacies during an outage.
- Maintaining stocks of supplies for multiple types of emergencies, including emergency water supplies, PPE, first aid supplies, reserve medications, etc.
- Making emergency preparedness a part of AVH's regular training program, providing training and orientation for new hires and regular refresher courses for continuing staff.
- Participating at least annually in Sonoma County-led emergency response drills and "table top" simulation exercises.

[260] HIPAA Journal, "HIPAA Violation Fines," *https://www.hipaajournal.com/hipaa-violation-fines/*.

PART SIX: Future Growth Opportunities

Overview

After examining patient data and service patterns, the Alexander Valley Healthcare (AVH) 2019 Community Health Needs Assessment concluded that demand for AVH services already exceeded the capacity of clinical provider staff, while limited physical space was a major roadblock to expanding provider capacity. As that report stated:

> Put simply, the health center has reached the limits of its available exam rooms, dental operatories, and counseling rooms, or space to offer other programs and there is insufficient space to add more rooms in the facilities AVH currently leases. [Page 159]

Since that report, AVH has added 2,686 new patients, but the total number of patients served each year has grown only marginally, from 4,206 in calendar 2019 to 4,514 in calendar 2021. The increase in 2021 was largely due to the adoption in 2020 of telehealth visits.

By 2019, AVH had already begun plans to build a major new community center in Cloverdale to replace both its current leased medical and dental clinic buildings. That planning has continued.

Figure 21: Artist's Rendering of Proposed Alexander Valley Health and Wellness Center

Source: Stromberg Architecture, Berkeley, Calif., *http://www.strombergarchitecture.com*

The planned new building is projected to have 42,000 square feet of programmable space, including at least 5,000 square feet for future capacity expansion. The new facility will have space to house additional medical exam rooms, dental operatories, group and individual counseling rooms, classrooms, conference rooms, movement rooms, and administrative space.

Plans also call for at least 5,000 square feet that can be leased to other health-related organizations that wish to establish a presence in Cloverdale or relocate from an existing leased space to co-locate with AVH.

With this planned larger facility, AVH will have multiple avenues to grow its patient volume and service visits. Those growth opportunities fall into three principal areas:

(1) **External growth opportunities**, attracting additional patients through strategic outreach and informational efforts in tandem with the planning and opening of the new facility.

(2) **Internal growth opportunities** to expand the number of users and visits, including:

   a. Encouraging more of AVH's intermittent patients to access care more regularly;

   b. Encouraging more of AVH's 4,900 medical patients to also become dental patients;

   c. Encouraging more of AVH's 1,915 dental users (39.4 percent of whom currently use only dental services) to also become medical patients; and

   d. Expanding behavioral health services to meet the evident patient need.

(3) **Service expansion opportunities**, which may include services offered directly by AVH or ones available through other providers located on-site in the larger facility. Expanded service offerings are likely to attract both new and existing users. Some potential service expansions can already be anticipated based on the needs data presented in this assessment.

External Growth Opportunities

This community needs assessment analyzed AVH's potential to attract new patients from the area, including both the three ZIP Codes that comprise the primary service area (also known as the primary catchment area) and the larger surrounding region from which AVH draws about one-fifth of its current patient volume (the secondary catchment area).[261]

UDS Mapper and U.S. Census data estimates that the ZIP Code Tabulation Areas (ZCTAs) that comprise the primary and second catchment areas had a combined 2020 population of

[261] In addition to Cloverdale, Geyserville, and Hopland, which are all in the primary service area, the secondary catchment area includes Calistoga, Clearlake, Clearlake Oaks, Healdsburg, Kelseyville, Lakeport, Lower Lake, Lucerne, Middletown, Redwood Valley, Ukiah, Upper Lake, and Willits.

145,299, of whom 33.4 percent (48,547) were low-income, with annual gross incomes below 200 percent of the federal poverty level (FPL).

UDS Mapper data indicates that in the 2021 calendar year, 37,000 area residents were served by federally funded community health centers (CHCs), a penetration rate of only 25.5 percent.

While serving the needs of low-income patients is of course a central goal of the community health center model, not all of the patients served by CHCs are low-income. In at least four ZCTAs in the primary and secondary catchment areas (Cloverdale, Geyserville, Ukiah, and Redwood Valley), the number of CHC patients exceeds the number of low-income residents.

Subtracting the number of patients with incomes over 200 percent of FPL from the total number of community health center patients reveals that in 2021, there were approximately 11,547 low-income residents of the primary and secondary catchment areas who were *not* served by a community health center, although it is likely that a significant percentage of those residents have unmet healthcare needs.

According to UDS Mapper data, 32.1 percent of adults in this area have been diagnosed with high blood pressure, 28.5 percent have been diagnosed as obese, 11.4 percent have been diagnosed with diabetes, 16.4 percent are smokers, and 18.2 percent are binge drinkers.

Table 155: Key Demographics for Estimating Unmet Need in AVH Primary and Secondary Catchment Areas, 2021

ZIP Code	*Community Name*	*Est. Total Population*	*Residents Below 200% of FPL*	*Residents Served by CHCs*
94515	Calistoga	7,525	1,426	1,579
95422	Clearlake	15,644	8,166	1,116
95423	Clearlake Oaks	3,597	1,579	234
95425	Cloverdale	11,144	2,688	4,624
95441	Geyserville	1,696	255	442
95448	Healdsburg	17,353	3,034	3,321
95449	Hopland	1,393	376	525
95451	Kelseyville	12,031	3,995	1,386
95453	Lakeport	11,209	3,559	1,682
95457	Lower Lake	3,061	1,298	223
95458	Lucerne	2,825	1,115	617
95461	Middletown	2,714	608	172
95470	Redwood Valley	5,359	1,586	1,809
95482	Ukiah	31,714	11,932	13,252
95482	Upper Lake	2,804	830	501
95490	Willits	13,731	5,330	5,013
	Totals	**145,299**	**48,547**	**37,000**

Source: 2021 UDS reporting data, via UDS Mapper, *https://www.udsmapper.org*

The growth opportunities are not limited to low-income residents. Many residents of rural or small-town areas, regardless of income or insurance coverage, depend on CHCs as their primary or sole local sources of care. AVH currently serves this role in Cloverdale, Geyserville, and Hopland. Large portions of the Mendocino and Lake County included in this analysis are similarly rural areas, or small towns with limited access or connection to care.

Based on UDS Mapper data, of the 145,299 residents of the primary and secondary catchment areas in 2021:

- 22.4 percent (32,547 people) reported being without a regular source of care.
- 12.0 percent (17,435 people) reported postponing care in the past year due to cost.
- 37.7 percent (54,777 people) had no dental care due to cost or unavailability of providers.

Even considering its existing space limitations, AVH served a total of 5,063 patients from these ZCTAs in the two-year period 2020–2021. With the new, larger AVH site, there is the potential to serve many additional patients from the region.

Internal Growth Opportunities

ENCOURAGING INTERMITTENT PATIENTS TO USE SERVICES MORE FREQUENTLY

As explained in the Service Patterns chapter, a substantial number of AVH patients do not have UDS-reportable visits in every calendar year. Although these patients may use ancillary services or enabling services during a given year, a patient who does not have a face-to-face encounter with a licensed or certified healthcare provider is not counted as a user in the health center's UDS reports.

For a private medical practice, the fact that some patients simply don't come in every year may be normal, but such a pattern has broader implications for a community health center like AVH:

- AVH is a provider of medical, dental, and mental health services, so a patient's absence for a year means they've gone a year without any of those services.

- More than half (50.3 percent) of AVH patients have chronic medical or behavioral health conditions whose management may need more frequent visits — annual or quarterly for medical conditions, monthly or more often for behavioral health conditions.

In 2020–2021, AVH served 5,708 unduplicated patients, but had UDS-reportable encounters (including virtual visits) with only 4,064 patients in 2020 and 4,514 patients in 2021, limited by provider capacity and in turn by available space. The 2021 figure likely represents a reasonable approximation of AVH's maximum clinical capacity in its current facilities, even with extended hours and the use of telehealth.

For operational purposes, AVH defines an "active patient" as one who has been seen by an AVH provider at least once in the past three years. In the most recent three full years — from January 1, 2019 to December 31, 2021 — AVH served a total of 6,743 unduplicated patients across all departments.

This data suggests that AVH has a current "active patient base" that already exceeds current clinical capacity (approximately 4,500 patients per year) by between 25 and 50 percent. Put another way, AVH's current capacity can accommodate only about two-thirds of the health center's current active patients. Additionally, the practice has also grown at a rate of 800 to 1,100 new patients per year.

The proposed additional capacity of the new facility offers an opportunity to substantially increase utilization by AVH's current patient base as well as better accommodating the influx of new patients. Based on existing patient population, it is reasonable to expect that added capacity would make it possible to increase the number of UDS-reportable users by 1,500 to 2,000 per year, a potentially enormous internal growth opportunity.

From a qualitative standpoint, expanding clinical capacity would also give providers more time and space to fully assess the health needs of new patients and establish their medical home with AVH, which would encourage those patients to return to their care team in the future.

Growing the number of providers would also improve AVH's ability to weather clinician turnover or absences, such as those AVH has experienced in the past several years.

Service Expansion Opportunities

With the move to a new, much larger facility, Alexander Valley Healthcare will also have an opportunity to expand the scope of its services to attract more patients and fill gaps in existing area services. Those new services could be launched either through AVH staff expansions or by providing space for other providers to co-locate in the new community wellness center.

SPECIALTY CARE

Many AVH patients need further evaluation through referrals to medical, dental, and mental health subspecialists. Because wait time for some appointments can be weeks or even months, and because failure to complete an appointment could endanger a patient's care, AVH provides support to patients in making and keeping such referral appointments through staff referral coordinators. AVH also tracks all such referrals and whether reports are returned to the AVH electronic health record.

The percentage of completed referrals has been low: 45 percent in 2018, rising to 53 percent in 2019, and then dropping to 41 percent in the pandemic year of 2020 and 35 percent in 2021.

Table 156: Referral Completion Rates, 2018–2021

Year	Total Referrals Created	Completed, Report Received	Percent Completed	Canceled or Expired
2018	2,380	1,077	45%	1,303
2019	2,422	1,288	53%	1,134
2020	2,013	822	41%	1,191
2021	2,707	934	35%	1,773

Source: AVH internal data

A major barrier to patients' completion of subspecialty referrals is travel time. There are relatively few specialists within the AVH service area and secondary catchment area, so patients must travel substantial distances to keep most referral appointments. For example, one-way travel time by car from central Cloverdale in non-rush-hour traffic is approximately:

- 33 to 46 minutes to Adventist Health Ukiah Valley in Ukiah or to Sutter Santa Rosa Regional Hospital, Providence Santa Rosa Memorial Hospital, or Kaiser Permanente Santa Rosa Medical Center in Santa Rosa;
- 97 minutes to UCSF Medical Center in San Francisco; or
- Two hours and 23 minutes to UC Davis Medical Center in Sacramento.

For patients who live in the hilly countryside around Cloverdale, reaching U.S. Highway 101 can add an additional 10 to 20 minutes to travel time. Heavy traffic conditions, road closures, and other impediments can increase travel time still further. Taking into account the time needed for the appointment itself and the return trip, **visiting a specialist can become an all-day affair**, which can involve significant out-of-pocket expense (including lost wages, additional childcare expenses, and the cost of fuel) beyond the cost of care.

One of the goals of building a larger AVH facility has been to eliminate this travel time and the attendant burden on patients and thereby improve the completion rate of subspecialty referrals. AVH envisions that this could be accomplished in three ways:

(1) Bringing contracted specialists to the community wellness center on a rotating or parttime basis;

(2) Leasing space in the facility to specialists for whose services there is sufficient regular demand, such as physical therapists, podiatrists, or chiropractors; and

(3) Establishing adequately equipped space to conduct specialty consultations via telehealth.

Among the specialties most often discussed for on-site location or rotation have been:

- Cardiology consultations for patients with heart disease or hypertension
- Endocrinology consultations for patients with diabetes mellites, obesity, hypertension, thyroid disfunctions, adrenal disorders, osteoporosis, and other chronic conditions
- Podiatry assessment and care for feet and ankles
- Chiropractic, physical therapy, and other modalities for treating acute or chronic pain
- Hyperbaric oxygen therapy (HBOT)[262] for wound care, burns, gangrene, carbon monoxide poisoning, diabetic foot ulcers, skin grafts, severe anemia, etc.
- Psychiatric evaluations and consultations.

There is already demonstrated need for these services within AVH's current patient base, and adding these services would likely attract additional new patients, including higher-income insured residents who would value no longer needing to drive to Santa Rosa and beyond for specialty care.

NEW MEDI-CAL SERVICES UNDER CALAIM

As part of a new Section 1115 Medicaid waiver approved by the Centers for Medicare & Medicaid (CMS), the State of California is rewriting a broad range of its contracted managed

[262] For background information on clinical uses of hyperbaric oxygen therapy, see the Mayo Clinic HBOT information page: *https://www.mayoclinic.org/tests-procedures/hyperbaric-oxygen-therapy/about/pac-20394380*.

care Medi-Cal services. Called California Advancing and Innovating Medi-Cal (CalAIM),[263] this multi-year waiver program makes a variety of significant changes to the state's Medicaid program and its managed care contracts.

Some of these changes include mandatory implementation of a "whole person care" population health management approach and an enhanced case management system intended to ensure that beneficiaries get the services they need. The initiative will also simplify enrollment and re-enrollment processes to improve continuity of care.

Some other CalAIM changes will be voluntary, intended to enable and incentivize managed care plans to address social barriers to health, such as food insecurity, homelessness or poor housing quality, lack of transportation or caregiver support, and provision of medically tailored meals to people with chronic conditions. They may also include new services such as sobering centers, respite care for caregivers, asthma remediation services, and more.

CalAIM will also allow Medi-Cal reimbursement for the use of community health workers as a means of reaching underserved or vulnerable populations. When drawn from the communities they serve, sharing a common language and cultural perspective, **community health workers are uniquely suited to helping disadvantaged communities navigate the healthcare system**.

Most of the details on how these changes will be implemented will depend on the outcome of a series of negotiations between the state and the managed care plans serving Medi-Cal patients in particular counties (which for AVH is Partnership HealthPlan of California). Once final decisions have been made, AVH may decide to pursue either providing some of these new services itself (once it has facilities to house the staff involved) or developing links with other community-based organizations contracted by Partnership HealthPlan, some of whom may eventually co-locate with AVH in its new community wellness center.

MEDI-CAL EXPANSION OF MATERNAL SERVICES

California has received federal approval to expand Medi-Cal's postpartum coverage for a full year after birth; historically, coverage ended shortly after the first postpartum visit. Expanded coverage offers an opportunity to extend care and services to the mother and infant, provide additional diet and nutrition support, screen for postpartum complications, monitor mother and infant bonding, and address any other health issues identified during the pregnancy.

[263] For further information about CalAIM, see the California Department of Health Care Services web page: *https://www.dhcs.ca.gov/calaim*.

This extension of coverage may also offer an opportunity to bring new mothers together in education/support groups to address pre- and postpartum depression. Group prenatal and postnatal care has recognized by the American College of Obstetricians and Gynecologists as a means of improving prenatal and perinatal outcomes and maternal health.[264]

WIC PROGRAM

Another proposal is to relocate Cloverdale's Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) to the new AVH facility. This would improve access for pregnant mothers and children (up to age 5) to the supplemental food program and nutrition education offered, and improve coordination of these benefits with other services, such as the oral screening and oral hygiene education services offered by AVH. This could be an effective way to further expand increase utilization of AVH dental services.

NUTRITION EDUCATION SERVICES

Many AVH patients could benefit from well-designed nutrition programs tailored to their conditions and personal characteristics, including the 659 2020–2021 patients who were identified as overweight and obese, the 447 who were diabetic, the 927 with hypertension, and the 337 with heart disease.

EXERCISE PROGRAMS

Similarly, many AVH patients could benefit from additional physical activity and exercise, for which AVH is planning to add a large activity room in its new facility.

This space could be used to offer a range of programs and classes. Some might be for children or families needing a safe indoor class space for yoga, dance, or other fun movement programs. Other offerings might include exercise programs aimed at patients with flexibility or mobility problems, such as tai chi or qigong classes and rehabilitative or yin yoga.

Postpartum exercise programs for new mothers might also be offered as part of larger "new parent" classes or support groups.

[264] See the American College of Obstetricians Committee on Obstetric Practice, "Group Prenatal Care," Committee Opinion No. 731, March 2018 (reaffirmed March 2021), *https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2018/03/group-prenatal-care*.

EXPANDED BEHAVIORAL HEALTH SERVICES

As indicated in the Service Patterns chapter, 1,822 current AVH patients have one or more existing mental or behavioral health diagnoses. In order to adequately serve all existing patients with chronic mental health conditions, AVH would require three times the behavioral health capacity the current facilities permit. This already-substantial figure does not reflect other, as yet undiagnosed need within the AVH patient population or the surrounding region.

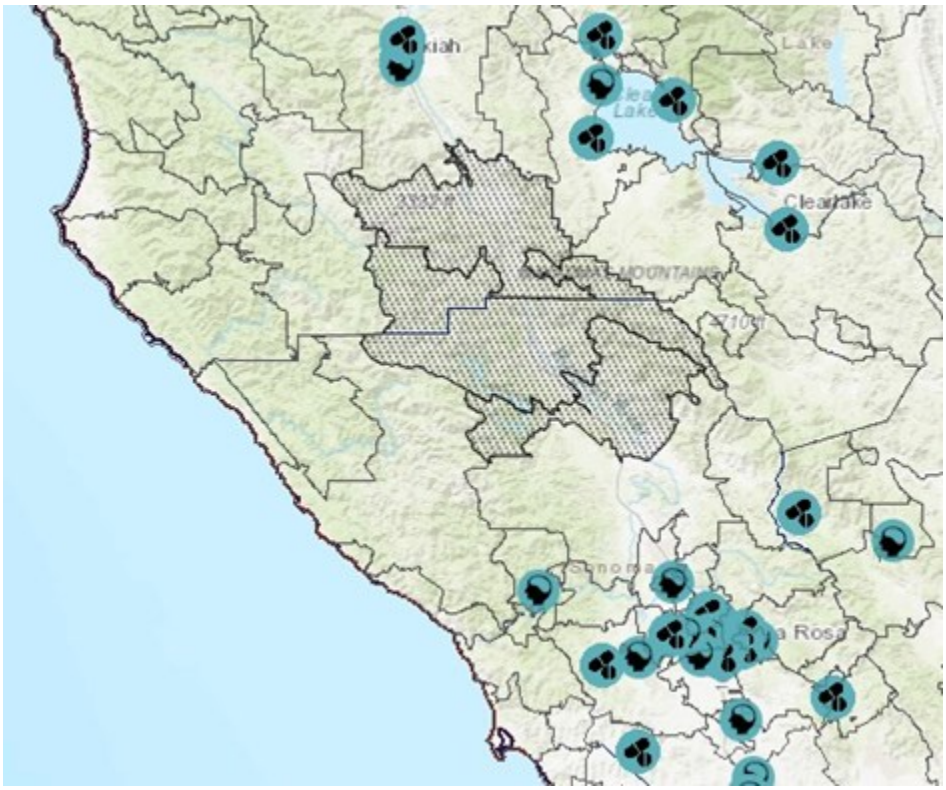
Furthermore, AVH's in-house substance use disorder services are still new and building their patient base. AVH has had an active depression screening program for nearly a decade and added an opioid drug screening program several years ago, but only began systematically screening for alcohol and other substances (using SAMSHA's evidence-based Screening, Brief Intervention and Referral for Treatment (SBIRT) protocol) in 2019.

This means that **substance use disorders are probably undercounted in the 2020–2021 patient statistics.** A high percentage of AVH patients with other chronic conditions were screened for alcohol abuse, but fewer patients with no medical or other behavioral conditions were screened. Broadening these screening programs is likely to identify additional patients in need of substance use disorder counseling services.

As illustrated by the following map, the HRSA UDS Mapper tool indicates that there are NO substance use treatment program sites in the Cloverdale area or within the bounds of the AVH primary service area. Most are clustered around Santa Rosa to the south, with some in the Clear Lake area to the northeast, all of which involves significant travel time from most parts of the service area.

Other than AVH, there is a gap in service availability, which supports the plan to expand behavioral health services when space and staffing allow.

Figure 22: Locations of Substance Abuse Treatment and Mental Health Programs Relative to AVH Service Area (Shaded Area), 2021



"Brain" symbols represent mental health programs, while capsule-and-pill symbols represent substance abuse programs. Source: Health Resources and Services Administration (HRSA), UDS Mapper web application, 2021, *https://www.udsmapper.org*, accessed Dec. 7, 2022

CHRONIC PAIN SERVICES

The number of AVH patients with chronic pain has risen from 360 in the 2013–2014 period to 536 in 2020–2021. EHR data shows that many of those patients also have other chronic conditions, including mental and behavioral health conditions such as depression, anxiety disorders, or alcohol or other substance abuse.

Growing concerns over the health impact of opioid painkillers have increased demand for other forms of pain relief. Health centers in various parts of the country have reported progress using alternative approaches to pain management, including:

- **Alternative therapies** such as osteopathic manipulation treatment, physical therapy, acupuncture, Feldenkrais Functional Integration (FI),[265] or craniosacral therapy.[266]

- **Safe movement programs** to help pain patients regain range of movement through practices such as tai chi, yoga, Feldenkrais Awareness Through Movement, qigong, or Pilates.

AVH's staff doctors of osteopathy have offered osteopathic manipulation therapy.

It is likely that offering alternative chronic pain services (and expanding the range of those services once AVH transitions to the new facility) would continue to draw new patients to AVH, including both residents of the service area and out-of-area residents from Lake, Mendocino, and Sonoma counties.

LIFE TRANSITION SUPPORT GROUPS

The behavioral health department can also provide support for other patients who may not have a chronic condition, but may be in need of professional or peer support through counseling groups. This might include people who are:

- **Recovering from traumatic events** such as domestic violence, bullying, or grief due to loss of a loved one, or

- **Undergoing life transitions** such as postpartum adjustment to a new baby, divorce or spousal abandonment, retirement or problems of aging, or recovery from major surgery or disabling injury.

[265] Originated by Moshé Feldenkrais and continued by Feldenkrais Practitioner Guilds, the Feldenkrais Method is a movement-based practice with two variations: Functional Integration, conducted in hands-on individual sessions with a Feldenkrais practitioner, and Awareness Through Movement, a floor-based program of exercises intended to improve range of movement, which can be performed individually or in group/class settings. See *https://feldenkrais.com* for more information. (Feldenkrais, Feldenkrais Guild, Awareness Through Movement, and Functional Integration are registered trademarks of the Feldenkrais Guild of North America in the United States.)

[266] Craniosacral therapy (CST) is another hands-on technique intended to reduce pain and improve health by relieving central nervous system tension. A CST session is similar to massage therapy, except that a gentler touch is used and the patient remains fully clothed. For more information, see the Cleveland Clinic information page: *https://my.clevelandclinic.org/health/treatments/17677-craniosacral-therapy*.

SERVICES TO SUPPORT INFORMAL CAREGIVERS

As discussed in the Service Area chapter, many people throughout California (and likely throughout the AVH service area) are acting as informal caregivers for friends or family members. This can be a source of considerable stress, and may require the caregiver to manage a care recipient's medical condition with little or no training or support.

In addition to offering support to caregivers, such as access to case managers, patient portals, and quick response to caregiver calls for assistance, AVH mental health professionals could create venues for counseling, peer support groups, or chat lines to ease the strain on informal caregivers and help prevent burnout.

FALL PREVENTION

For older adults, falls are a significant source of unintentional injury that can have lasting, sometimes permanent consequences, including loss of mobility and capacity for self-care. With a growing proportion of patients over age 65, AVH may choose to address this risk through a fall prevention effort.

In the 2011–2012 California Health Interview Survey, 13.3 percent of Sonoma County respondents over 65 reported having fallen to the ground at least once in the past year, compared to 12.4 percent of seniors statewide. Sonoma County seniors were also more likely to need medical care as a result of a fall; 45.6 percent of Sonoma County respondents who had fallen in the past 12 months sought medical care related to a fall, where the statewide figure was only 41.6 percent.[267]

By adding fall prevention education and movement programs, AVH could help to reduce the incidence of falls for older patients, which could pay significant dividends for these older adults' quality of life.

SOCIAL SERVICES

The Alexander Valley Healthcare service area has an extremely limited range of available social services. Those that exist are typically accessed through referrals from AVH case managers, referral coordinators, or financial assistance staff. For individuals or families to actually receive services often involves traveling to another part of the county.

[267] California Health Interview Survey (CHIS), UCLA Center for Health Policy Research, 2011–2012 pooled data. This survey question has not been repeated in more recent years, so the 2011–2012 data are the most recent available.

A goal of AVH's new facility is to provide space for social services to be located in Cloverdale, to make access easier. Some examples could include:

Enrollment in Public Programs

AVH's financial assistance staff help patients or other community members enrolling in CalFresh (California's Supplemental Nutrition Assistance Program, formerly known as "food stamps"), Medi-Cal, and ACA marketplace health plans. That process could be made quicker if these applications were being processed on-site at the center by an out-stationed Sonoma County employee.

Similarly, more AVH patients would apply for Alliance Medical Center's **WIC Supplemental Food Program** and nutrition education if it was located in the center.

Recreation Programs

The Center for Well-Being is an example of an organization providing a mix of evidence-based exercise, nutrition, and health promotion classes that has expressed interest in providing services in the new facility. Before the pandemic, the Center for Well-Being had been available only in other parts of Sonoma County, which have more recently been supplemented by online programs. The classroom and exercise spaces planned for the new AVH facility would allow the Center to have a presence in the service area.

Housing Assistance

High housing costs and housing conditions are leading social problems impacting health in the service area. **Reach for Home** is a leading housing placement and advocacy organization in Sonoma County. Having an office in the AVH community wellness center would assist homeless people in the area, as well as patients who are threatened with loss of rental housing, in filing out applications for emergency and longer-term county housing programs.

Outreach for Isolated Families

During the pandemic, AVH has been aided in carrying out its COVID-19 testing and vaccination program by the outreach of a relatively new, mostly volunteer community group, **La Familia Sana.** The plan is for La Familia Sana to have a presence in the community wellness center to anchor outreach and advocacy efforts.

Co-location of other services in the new center is also an opportunity to cultivate a "No Wrong Door" referral network within the service area, increasing the opportunities for social service agencies to better understand what services other organizations can offer and appropriately

refer clients and patients. (This goal is being promoted by Cloverdale Health Action Chapter, a local community improvement group.)

EMERGENCY RESPONSE

AVH has partnered with local and county agencies on emergency preparedness planning and training efforts for more than 15 years.

Northern Sonoma County Community Emergency Response Team (CERT) is the principal coordinator of disaster preparedness activities in the northern part of the county, as well as an emergency response force during disaster such as fires, earthquakes, flood, windstorms, and toxic spills.

CERT leaders have proposed housing supplies for their emergency site in a specifically designed space within the new AVH Center. CERT is already using the Cloverdale Citrus Fairgrounds, located next door to the site of the new AVH facility, to conduct disaster preparedness education programs and “Safety Expos” (in which AVH has participated), as well as using the fairgrounds as an emergency response staging area.

The fairgrounds is already designated as an official emergency shelter and likely to be designated a temporary evacuation point and emergency housing hub. The volunteer groups that work with CERT are also potential recipients of referral cross-training as part of the “No Wrong Door” strategy.

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Alexander Valley Healthcare

Feel Good... We Have You Covered

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