

Regional Health Analysis

Sierra Jobs First

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Executive Summary

This Regional Community Health Analysis provides an overview of the health status, socioeconomic dynamics, and environmental challenges facing Alpine, Amador, Calaveras, Inyo, Mariposa, Mono, and Tuolumne counties (collectively referred to as the Sierra region). By examining key demographic data, social determinants of health, employment trends, environmental factors, and health indicators, this report offers insights into current needs and potential strategies to enhance community health outcomes.

Introduction

The Sierra region's diverse population—spanning older adults, young families, and varying socioeconomic backgrounds—faces unique health challenges. Socioeconomic, cultural, and environmental factors all play a significant role in shaping community health. This analysis identifies critical issues, disparities, economic impacts, and strategic opportunities for improvement.

Demographics

- **Aging Population:** Approximately 25% of residents are 65 or older, emphasizing the need for geriatric care services.
- **Growing Young Families:** An influx of younger households indicates rising demand for pediatric and maternal healthcare.

Social Determinants of Health

- **Poverty Rates:** Certain communities experience poverty levels exceeding 30%, correlating with higher chronic disease rates and lower life expectancy.
- **Educational Attainment:** While the region has strong high school graduation rates, fewer students pursue post-graduation education, affecting long-term employment and health outcomes.

Employment in Healthcare

- **Industry Growth:** Healthcare is expected to expand by 9.6% by 2030, adding 650 jobs in the region.
- **Range of Opportunities:** Positions vary from home healthcare (requiring minimal formal training) to specialized roles needing advanced degrees.
- **Education and Training:** Strengthening local colleges and workforce development programs can boost wages and meet healthcare staffing needs.

Environmental Concerns

- **Climate Change Impacts:** Wildfires, extreme weather (significant snowfall and flooding), drought, and heat events pose health risks and create economic challenges.
- **Infrastructure Strain:** Disasters can disrupt access to healthcare, food, and other critical resources.

Key Health Indicators

1. **Chronic Diseases**
 - **Cardiovascular Disease:** Accounts for 32% of regional deaths.
 - **Diabetes Prevalence:** 15%, notably higher than the 11.6% national average.
2. **Behavioral Health**
 - **Mental Health:** 20% of residents report symptoms of anxiety or depression.
 - **Substance Use Disorders:** Rising opioid misuse drives up emergency visits and fatalities.
3. **Access to Care**
 - **Urban vs. Rural Divide:** Rural communities face provider shortages, transportation barriers, and inadequate insurance coverage.
4. **Climate Change/Emergency Preparedness**
 - **Extreme Events:** Wildfires, droughts, and severe storms limit healthcare access, disrupt food supplies, and exacerbate mental health concerns.

Strategies for Improvement

1. **Expand Healthcare Services** – Increase facility capacity and outreach in underserved areas.
2. **Address Social Determinants** – Invest in education, affordable housing, and job creation to improve overall health.
3. **Targeted Public Health Campaigns** – Focus on prevention and healthy behaviors to reduce chronic disease risk.
4. **Enhance Mental Health & Substance Use Services** – Strengthen community-based programs and treatment options.
5. **Emergency Preparedness** – Develop robust plans for climate-related disasters and invest in resilient infrastructure.
6. **Workforce Development** – Collaborate with local schools and colleges to expand training programs and meet healthcare workforce needs.
7. **Innovative Care Models** – Adopt shared resource models and collaborative agreements for efficient healthcare delivery.
8. **Workforce Housing** – Create affordable housing to attract and retain healthcare professionals.

Conclusion

By strengthening healthcare access, addressing social determinants, and fostering collaboration among local stakeholders, the Sierra region can enhance community health outcomes and spur

sustainable economic growth. Investing in education, workforce development, and emergency preparedness will be critical to meeting current needs and preparing for future challenges.

Analysis

A 2023 report, *Public Health Analysis for California's Eastern Sierra Region*, conducted by Kirsch (2023) for Cal Poly Humboldt, examined key healthcare priorities in the Eastern Sierra Region. This analysis identified three primary regional healthcare priorities:

1. Smoking prevention, education, and cessation
2. Substance use prevention and treatment
3. Suicide prevention and access to mental health services

While these priorities align with regional concerns, additional health needs have emerged through individual Community Health Needs Assessments (CHNAs) conducted at the county level. Based on these assessments, an additional eight priorities have been identified and will be explored in this analysis.

Additionally, the term Eastern Sierra can be misleading, as this region includes both the eastern and western areas of the Sierra, spanning Alpine, Amador, Calaveras, Inyo, Mariposa, Mono, and Tuolumne counties. This report aims to provide a more comprehensive understanding of community health priorities and their economic impact on these counties within the Sierra region.

To ensure accuracy and relevance, CHNAs from Alpine, Calaveras, Mariposa, and Tuolumne counties were reviewed. Amador County recently published a Public Health Strategic Plan, which incorporates health priorities, while Mammoth Hospital and Northern Inyo Hospital conducted more recent CHNAs than previous public health assessments in their respective areas. Given the significant changes in health and community priorities over the past several years, utilizing the most current data is essential for evaluating regional needs, understanding the economic impact, and developing strategic plans to enhance community health.

Understanding Social Determinants of Health

When conducting community health surveys and analyses, it is essential to understand the social determinants of health (SDOH)—the conditions in which people are born, live, learn, work, play, worship, and age. These factors impact a wide range of health outcomes, functioning, and quality of life. The Office of Disease Prevention and Health (2024) categorizes these determinants into five key domains:

1. Economic stability
2. Education access and quality
3. Healthcare access and quality

4. Neighborhood and built environment
5. Social and community context

Each Community Health Needs Assessment (CHNA) must include these social determinants to measure the factors influencing community health effectively. Because many of these issues are interconnected, this report categorizes key health priorities into the following areas:

- Increased healthcare access
- Mental health
- Chronic health conditions
- Access to quality food
- Obesity
- Alcohol and substance abuse
- Affordable housing and living wages
- Climate change, emergency response, and preparedness

Since emergency preparedness is closely linked to climate change, these topics are examined together.

Demographics of the Sierra Region

The median age across counties in this region is generally higher than the California state average. The following sections provide a county-by-county breakdown of population data, highlighting median age and racial/ethnic demographics.

Inyo County

- **Median Age:** 44.5 years
- **Age Distribution:** A larger proportion of young children and older adults compared to state averages
- **Racial/Ethnic Breakdown:**
 - White: 61.8%
 - Hispanic: 24.6%
 - American Indian/Alaska Native: 13%
 - Asian: 1.5%
 - Black: 0.5%

Alpine County

- **Population:** 1,203 (smallest county in California)
- **Median Age:** 44.9 years
- **Age Distribution:**
 - Under 18: 16%
 - Over 65: 28%
- **Racial/Ethnic Breakdown:**
 - White: 65%

- Hispanic: 12.6%
- American Indian: 21%
- Asian: <1%
- Black: 2%

Tuolumne County

- **Population:** 52,932
- **Median Age:** 48.6 years
- **Age Distribution:**
 - Under 18: 17.3%
 - Over 65: 28.7%
- **Racial/Ethnic Breakdown:**
 - White: 78%
 - Hispanic: 14%
 - Native American: 2.3%
 - Asian: 1.7%
 - Black: 2%

Mariposa County (U.S. Census Bureau, 2024)

- **Population:** 16,919
- **Age Distribution:**
 - Under 18: 17.9%
 - Over 65: 31%
- **Racial/Ethnic Breakdown:**
 - White: 88.6%
 - Hispanic: 15%
 - Native American: 3.6%
 - Asian: 2%
 - Black: 1.4%

Mono County

- **Population:** 13,066
- **Age Distribution:**
 - Under 18: 17.3%
 - Over 65: 19.3%
- **Racial/Ethnic Breakdown:**
 - White: 89.5%
 - Hispanic: 27.4%
 - Native American: 3%
 - Asian: 2.3%
 - Black: 1.2%

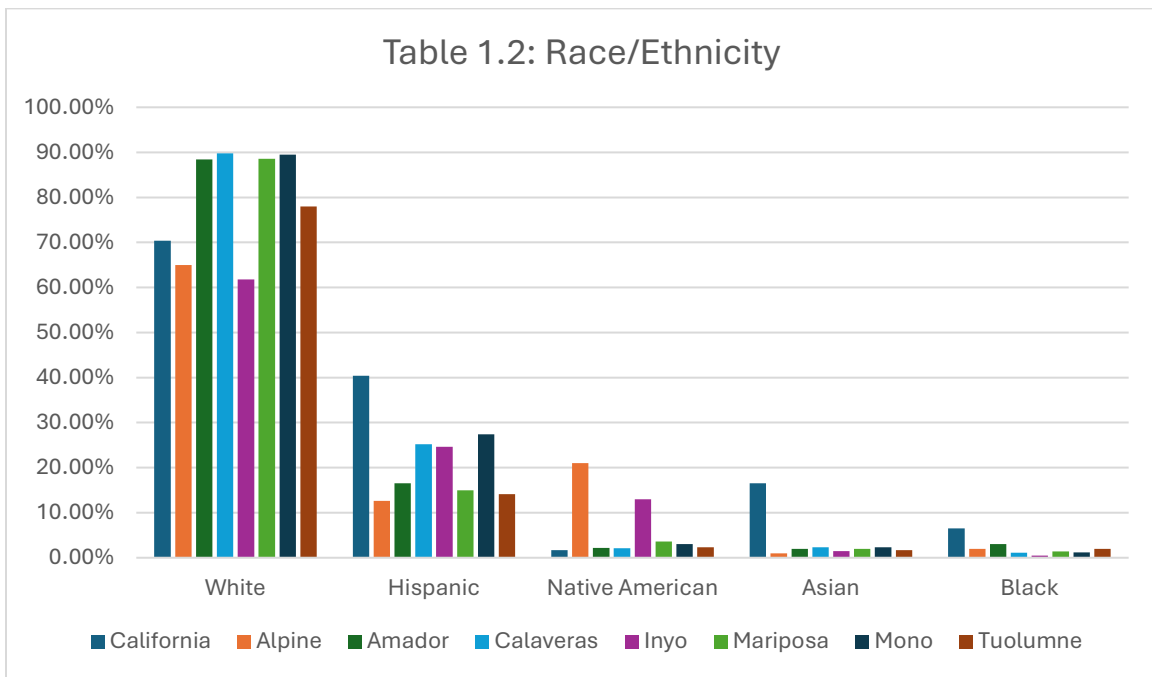
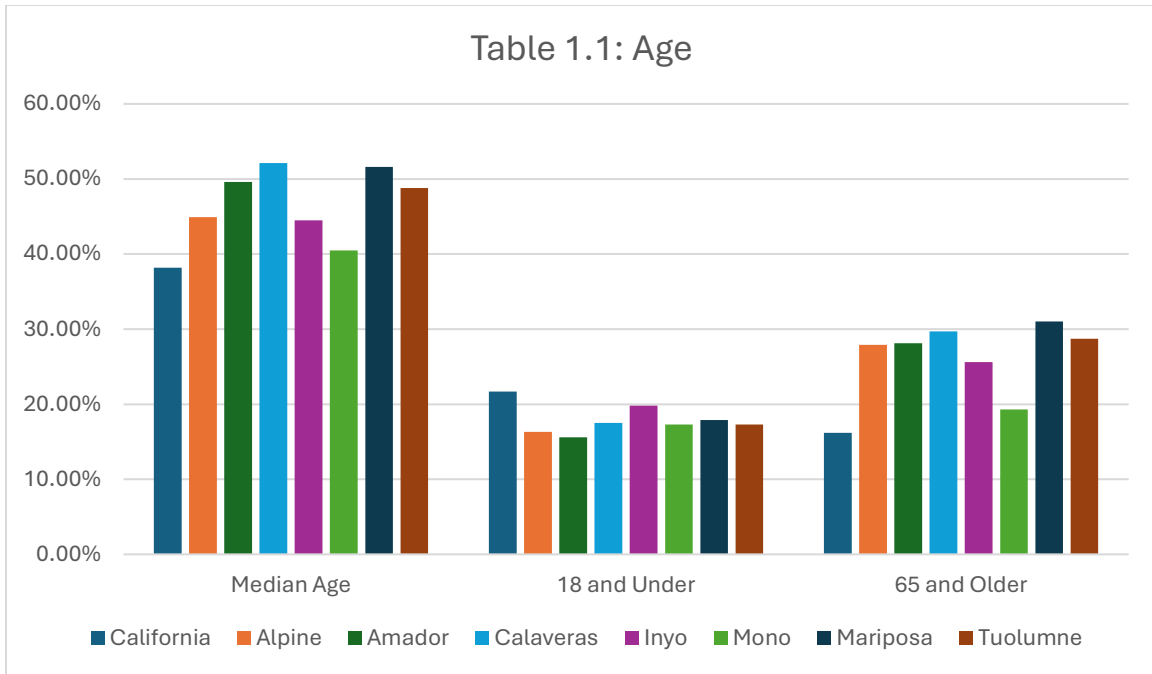
Calaveras County

- **Population:** 45,565
- **Age Distribution:**
 - Under 18: 17.5%
 - Over 65: 29.7%
- **Racial/Ethnic Breakdown:**
 - White: 89.8%
 - Hispanic: 25.2%
 - American Indian: 2.1%
 - Asian: 2.3%
 - Black: 1.1%

Amador County

- **Population:** 41,811
- **Age Distribution:**
 - Under 18: 15.6%
 - Over 65: 28.1%
- **Racial/Ethnic Breakdown:**
 - White: 88.4%
 - Hispanic: 16.5%
 - American Indian: 2.2%
 - Asian: 2%
 - Black: 2%

These demographic insights provide a clearer picture of the population landscape across counties. A detailed race and ethnicity breakdown is also illustrated in **Tables 1.1 and 1.2** of the full report.



Poverty and Its Impact on Health

Poverty is a key indicator of social determinants of health, influencing access to healthcare, education, nutrition, and essential resources needed for a healthy quality of life. Individuals in poverty often experience higher levels of discrimination, limited healthcare access, and fewer

economic opportunities. Rural areas, including the Sierra region, tend to have higher poverty rates than urban areas. Two primary methods were used to assess poverty in these counties:

1. **Child Poverty Rates**

- Alpine County: 35% (highest in the region)
- Inyo County: 15% (equal to state average)
- Mono County: 12% (below state average of 15%)

2. **Federal Poverty Level (FPL) for Entire Population**

- Mariposa County: 37.4% (highest in the region)
- Calaveras County: 14.1%
- Tuolumne County: 9.9%
- Amador County: 7.8% (lowest in the region)
- California State Average: 12%

These statistics highlight significant disparities in poverty rates across counties, directly impacting residents' ability to access essential healthcare services.

Challenges in Healthcare Access

Rural counties struggle with recruiting and retaining healthcare providers, leading to:

- Limited availability of services
- Long wait times for appointments
- Delayed medical care

County-Specific Findings

- Tuolumne County identified three major healthcare priorities:
 1. Access to care
 2. Health risk behaviors
 3. Chronic health conditions (Tuolumne County Public Health, 2023)
 - 26% of residents reported difficulty finding quality and affordable dental care.
 - Physician-to-resident ratio: 1 per 1,650 residents (higher than state average of 1 per 1,200).
- Calaveras County faces severe provider shortages:
 - 66% of residents stated there is a lack of medical providers.
 - 63% reported skipping medical tests, treatments, or prescriptions due to cost (Calaveras County Public Health, 2023).
- Mariposa County ranks 50th out of 58 counties for clinical care (Mariposa County Health & Human Services Agency, 2024).
- Inyo County is designated as a Health Professional Shortage Area for primary care:
 - 1,505 people per dentist, compared to California's 1,132 per dentist.
- Mono County has a 13% uninsured rate, nearly double the state average of 7%, affecting affordability and access to care.

Provider Shortages and Workforce Retention

A significant challenge in rural healthcare is attracting and retaining medical professionals. Many counties lack competitive salaries and educational opportunities to sustain a local workforce.

- Calaveras County struggles to retain healthcare providers due to higher-paying employers outside the county, leading to long wait times and increased emergency room visits for primary care.
- Amador Sutter Health reports:
 - Few dental providers
 - Most are not accepting new patients
- Mammoth Hospital is the only Medi-Cal dental provider in Mono County, causing extended wait times for routine care.
- Adventist Health cites a lack of local healthcare career pathways, making it difficult to train and retain providers.

Potential Solutions:

- Strengthening partnerships between educational institutions and healthcare providers
- Expanding dual enrollment programs at high schools with Cerro Coso College and Columbia Colleges
- Establishing local healthcare training programs to build a sustainable workforce

Transportation Barriers and Healthcare Access

Lack of reliable transportation prevents many rural residents from receiving timely medical care.

- Mono County has few public transit options, requiring long travel times for specialized care.
- Dial-a-Ride services are often delayed or unreliable.
- 5% of U.S. residents—and 14% of low-income individuals—report skipping medical appointments due to transportation difficulties (Smith et al., 2023).

These barriers contribute to delayed treatments, higher emergency care costs, and reduced workforce participation, reinforcing a cycle of poverty and poor health outcomes.

The Sierra region faces significant healthcare disparities due to poverty, provider shortages, transportation barriers, and a lack of local medical education programs. Addressing these challenges requires:

- Expanding healthcare training programs to retain providers locally
- Improving transportation infrastructure for medical access
- Increasing affordability of care through expanded insurance acceptance
- Developing partnerships between schools, hospitals, and local governments

By prioritizing these efforts, the region can work toward a more sustainable, accessible, and equitable healthcare system.

Mental Health in Rural Counties

All counties in the Sierra region have identified a critical need for increased mental health services. This remains one of the most pressing healthcare challenges, as the availability of services in rural areas is vastly different from that in urban areas.

According to the Rural Health Information Hub (2024), mental health conditions occur at similar rates in rural and urban communities. However, access to care in rural areas is often hindered by:

- Lack of mental health providers
- Limited specialty services
- High costs of care
- Stigma around seeking treatment

These barriers contribute to higher suicide rates and increased substance abuse. An estimated 60% of rural Americans live in designated mental health provider shortage areas (Morales et al., 2020). Unfortunately, this provider shortage has significantly impacted the counties in this region.

Suicide Rates and Mental Health Provider Shortages

All counties in the region report higher suicide rates per 100,000 people than the California state average. However, due to data limitations, suicide rates for Inyo, Mono, and Alpine Counties were extrapolated from local Community Health Needs Assessments (CHNAs) rather than the National Institutes of Health (NIH).

Key Findings by County

- **Mono County**
 - 12% suicide rate, 2% higher than the state average
 - Sixth leading cause of death in the county
 - Provider shortage: 1 mental health provider per 469 residents (State average: 1 per 224)
 - Behavioral health ranked second among significant health needs (Mammoth Hospital CHNA, 2022)
- **Inyo County**
 - Suicide rate: 17.6% (8% higher than California average)
 - Mental health ranked #2 priority by Northern Inyo Healthcare District
 - Survey respondents identified mental health as the most critical issue
- **Calaveras County**
 - 46% of residents report a lack of mental health services
 - 77% believe mental health services for teens and children need expansion (Calaveras Community Public Health, 2024)

- **Tuolumne County**
 - Highest rate of suicide-related years of life lost in all of California
 - Only one psychiatrist serves the entire county
- **Alpine County**
 - Identified mental health issues among their top three community concerns

These statistics highlight the urgent need for mental health services in the region.

Challenges in Accessing Mental Health Services

The barriers to mental health care in rural areas include:

1. Limited availability of providers
 - Mono County's ratio of 1 provider per 469 residents is twice as high as the state average.
 - Tuolumne County has only one psychiatrist for the entire county.
2. Long wait times and affordability
 - Many providers do not accept public insurance (Medi-Cal/Medicare), making mental health services financially inaccessible for low-income residents.
3. Lack of awareness and stigma
 - Many residents are unaware of available resources or hesitant to seek care due to societal stigma.

Economic and Social Impact of Poor Mental Health

The financial and societal costs of inadequate mental health care are profound:

- **Lost Productivity & Workforce Impact**
 - Mental health issues contribute to absenteeism, reduced workplace efficiency, and long-term disability.
 - A lack of mental health care leads to increased healthcare costs due to emergency room visits and untreated conditions.
- **Economic Burden of Suicide**
 - The economic cost of suicide and nonfatal self-harm in the U.S. was estimated at \$510 billion in 2020 (Peterson et al., 2024).
 - Suicide leads to lost earnings for families and increased costs for grief counseling and medical care.

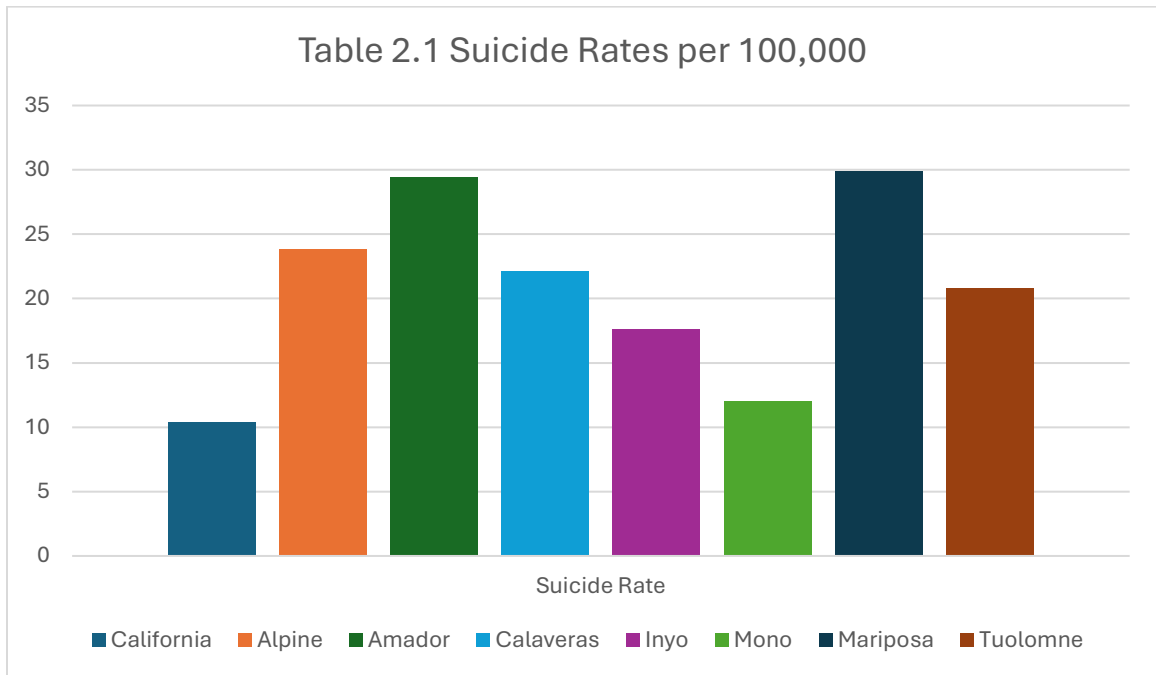
Proposed Solutions to Address Mental Health Gaps

To improve mental health care access in rural Sierra counties, efforts should focus on:

1. Expanding Telehealth Services
 - Increase virtual counseling options to mitigate provider shortages.
 - Advocate for insurance reimbursement for telepsychiatry.
2. Recruitment & Retention of Mental Health Professionals

- Offer student loan forgiveness and incentives to providers who practice in rural, underserved areas.
 - Strengthen partnerships between local colleges and healthcare facilities to develop a mental health workforce pipeline.
3. Community-Based Outreach & Education
- Promote mental health awareness programs to reduce stigma and encourage early intervention.
 - Provide resources for schools, workplaces, and community centers to improve mental health literacy.
4. Increase Funding & Insurance Coverage for Mental Health Services
- Advocate for Medi-Cal and Medicare reimbursements for mental health providers.
 - Expand funding for mobile crisis response teams and rural behavioral health programs.

The shortage of mental health providers, high suicide rates, and lack of accessible care highlight the urgent need for intervention in the Sierra region. Addressing this crisis requires a multi-faceted approach, including expanding telehealth services, recruiting mental health professionals, increasing funding, and improving public awareness. By implementing these strategies, rural communities can reduce mental health disparities, improve overall well-being, and strengthen economic stability.



Chronic Health Conditions in Rural Counties

Chronic diseases remain a significant public health concern in the Sierra region, with counties identifying cancer, heart disease, diabetes, asthma, and high blood pressure as top priorities. While Kirsch (2023) highlighted lung cancer as a major issue—likely due to the region's high smoking rates—county-specific data indicate that cardiovascular diseases and other chronic illnesses are of even greater concern. Table 3.1 from the CDPH Health Status Profile (2019) highlights mortality rates from cancer, diabetes, respiratory diseases, and coronary artery disease. Several counties, particularly Amador and Calaveras, report some of the highest cardiovascular disease rates in California.

Key Findings by County

- **Alpine County**
 - High blood pressure prevalence: 28.2%–31% (State average: 9%)
- **Calaveras County**
 - 15% of residents have cardiovascular disease
 - 9% suffer from chronic respiratory disease (Calaveras County Public Health, 2023)
- **Mariposa County**
 - 16.8% of residents serve as caregivers for an older adult with chronic illness or disability
 - Top three caregiver needs: in-home support, physician access, transportation (Mariposa County Public Health, 2024)
 - Higher-than-average years of potential life lost, **attributed to** cancer, heart disease, and unintentional deaths
 - Asthma prevalence: 25.1% (State average: 15.1%)
- **Amador County**
 - Highest premature death rate in California
 - Stroke mortality: 54.7 per 100,000 (State average: 41.2)
 - Heart disease mortality: 279.1 per 100,000 (State average: 159.5)
 - Cancer mortality: 261.4 per 100,000 (double the state average)
 - High cholesterol prevalence: 30.7%
 - Obesity rate: 29.8% (a major contributor to heart disease, diabetes, and stroke)
- **Tuolumne County**
 - 90.8% increase in diabetes mellitus (Obesity is a key factor)
 - Cardiomyopathy increased by 74.2%
 - Hypertensive heart disease increased by 49.3%
 - Smoking, obesity, substance abuse, and heavy alcohol consumption contribute to these rising rates
- **Inyo County**
 - Cancer, diabetes, and heart disease rank among the top five health priorities
 - Cancer is the second leading cause of death, with mortality rates higher than the state average
 - Native American population has double the cancer rate of the state average

- Health disparities among Native Americans may contribute to these high cancer rates

These findings illustrate the growing burden of chronic diseases in the region and the urgent need for targeted interventions.

Contributing Factors to Chronic Illness in Rural Counties

Several factors may explain the higher rates of chronic disease in rural areas:

1. Limited Access to Healthcare
 - Fewer specialist providers, particularly cardiologists and endocrinologists
 - Long travel distances to major healthcare centers
2. Transportation Barriers
 - Lack of public transportation options
 - Elderly and low-income populations struggle to reach medical facilities
3. Health Literacy and Preventive Care Gaps
 - Lower awareness about disease prevention
 - Fewer routine screenings for conditions like diabetes and high blood pressure
4. High Smoking Rates and Lifestyle Factors
 - Smoking contributes to lung cancer, heart disease, and stroke
 - Obesity and poor nutrition are linked to diabetes, hypertension, and cardiovascular disease

Economic Impact of Chronic Disease

Chronic illnesses not only affect individual health but also strain the economy:

- Heart disease and stroke cause 944,800 deaths annually in the U.S. (CDC, 2024)
- Annual healthcare costs: \$254 billion
- Lost workplace productivity: \$168 billion
- Projected cost of cardiovascular disease: \$2 trillion by 2050

Investing in preventive care and chronic disease management could significantly reduce these costs while improving quality of life for rural residents.

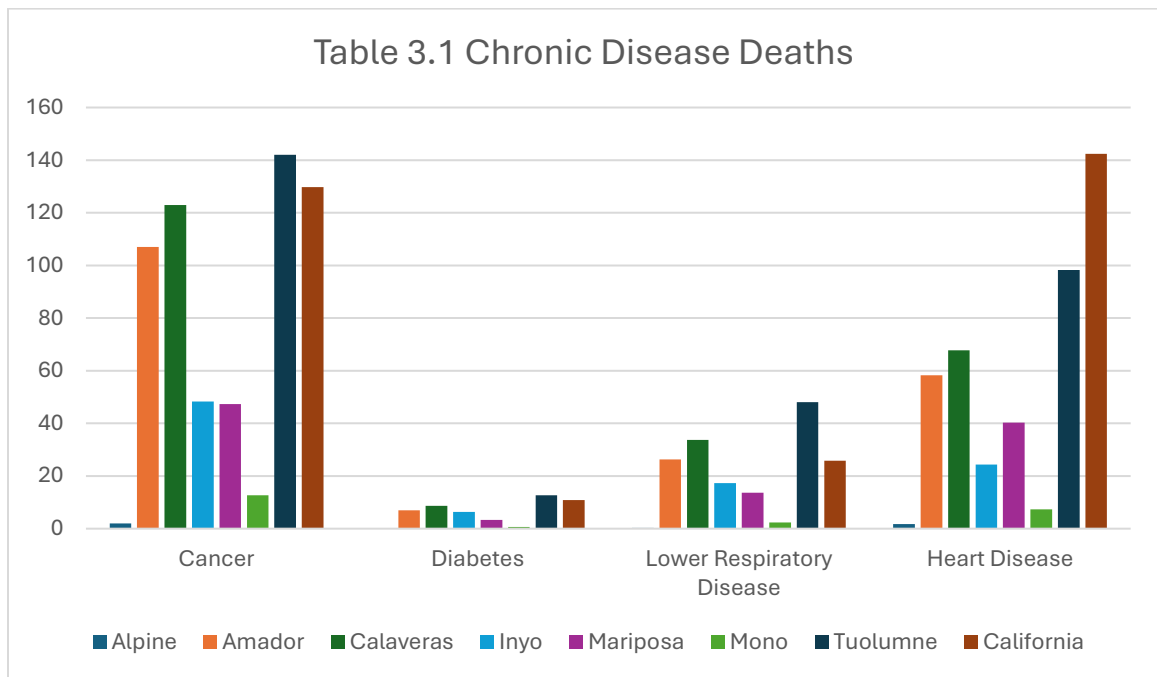
Strategies to Improve Chronic Disease Outcomes

To address high rates of chronic illness, counties should implement targeted interventions, including:

1. Community Health Workers (CHWs) & Preventive Screenings
 - Medicare is expanding CHW programs to provide:
 - Routine blood pressure and blood sugar screenings
 - Lifestyle education and disease prevention support
 - CHWs can reach underserved populations directly in their communities

2. Expanding Access to Telemedicine & Mobile Clinics
 - o Telehealth services for cardiology, endocrinology, and pulmonology
 - o Mobile health units to provide diabetes screenings, cholesterol checks, and asthma care
3. Smoking Cessation & Obesity Prevention Programs
 - o Increase funding for smoking cessation initiatives
 - o Expand nutrition and fitness education programs in schools and workplaces
4. Improved Transportation & Healthcare Accessibility
 - o Develop rural transportation services for medical visits
 - o Expand community-based healthcare services

Chronic disease is a nationwide concern, but its impact is particularly severe in rural communities due to limited access to care, affordability issues, and transportation challenges. Addressing these disparities through community health worker programs, telemedicine expansion, preventive screenings, and lifestyle interventions will be crucial in improving health outcomes and economic sustainability. By investing in preventive care and chronic disease management, rural counties can reduce mortality rates, lower healthcare costs, and improve quality of life for their residents.



Access to Quality Food in Rural Counties

Rural communities often struggle with food access due to geographic isolation, limited transportation, and economic challenges. Many areas lack grocery stores, forcing residents to travel long distances for fresh, healthy foods. For example, in Bridgeport (Mono County), residents must travel one hour each direction to reach the nearest grocery store. Unfortunately, many low-income individuals lack transportation to access these healthier food options. This limited access to quality food directly contributes to chronic diseases, increasing the healthcare burden in these counties. Addressing food insecurity is essential for improving public health outcomes and reducing long-term medical costs.

County-Specific Food Access Challenges

- **Alpine County**
 - 12% of residents have limited access to healthy foods (State average: 3%)
 - Priority: Increase fresh food availability and reduce barriers to access
(*Alpine County Department of Health and Human Services, 2022*)
- **Calaveras County**
 - Many residents live remotely and lack transportation to buy fresh food
 - Mobile food truck comes only once a week
 - 1/3 of the population must choose between nutritious food and other necessities
(*Calaveras County Public Health, 2023*)
- **Mariposa County**
 - Officially classified as a food desert
 - 21% of residents struggle to afford food
 - Food Environment Index: 8 (below state average)
(*Mariposa County Health and Human Services, 2024*)
- **Tuolumne County**
 - Suffers from both a food desert and a food swamp
 - **Food desert:** Few or no fresh food options
 - **Food swamp:** High availability of fast food and unhealthy options
 - **Food Environment Index:** 7.5 (State average: 8.8)
 - Correlation with obesity, heart disease, diabetes, and premature death

The Food Environment Index

The Food Environment Index (scale: 1-10) measures a county's food access by evaluating:

- Proximity to grocery stores
- Availability of healthy food options
- Affordability and income constraints

Higher scores indicate better food environments, while lower scores signal greater food insecurity.

- Mariposa County Index: 8 (*Below state average*)
- Tuolumne County Index: 7.5 (*Well below state average of 8.8*)

Why Expanding Food Access Matters

Improving access to healthy food options can provide multiple benefits, including:

- Better Health Outcomes – Reduced rates of obesity, diabetes, heart disease, and premature death
- Economic Growth – Grocery stores create local jobs and boost property values
- Stronger Communities – People are more likely to stay in areas with essential resources

Recommendations to Improve Food Access

1. Increase Grocery Stores & Farmers' Markets
 - Encourage small grocery stores to open in rural areas
 - Expand farmers' markets and local food co-ops
2. Enhance Mobile Food Distribution
 - Increase food bank outreach programs
 - Expand mobile fresh food trucks to reach isolated communities
3. Subsidize Healthy Food Options
 - Offer nutrition incentive programs (e.g., double SNAP benefits at farmers' markets)
 - Encourage local retailers to stock fresh produce at reduced costs
4. Improve Transportation Solutions
 - Expand rural transportation services for grocery access
 - Establish community shuttle programs to transport residents to grocery stores
5. Promote Community Gardens & Food Education
 - Develop community gardens to grow fresh produce locally
 - Offer nutrition education programs to encourage healthy eating habits

Rural counties face significant food access challenges, leading to higher rates of chronic disease and economic hardship. Investing in grocery stores, transportation, food assistance programs, and local food production can dramatically improve health outcomes and community well-being. By addressing food insecurity, rural areas can reduce chronic disease rates, stimulate local economies, and create healthier, more sustainable communities.

Obesity and Its Impact on Rural Health

Obesity is a significant health concern, contributing to coronary artery disease, high blood pressure, and diabetes. As obesity rates continue to rise, addressing this issue has become a public health priority worldwide.

Obesity Rates in Rural Counties

- **Alpine County**
 - Ranks overweight/obesity as the #2 health priority
- **Mono County (Mammoth Hospital)**
 - Obesity rate: 29% (*State average: 26%*)
- **Mariposa County**
 - **Adult obesity rate:** 30%
 - **Childhood obesity (5th graders, 2019):** 46.2% (*State average: 40.94%*) (*Mariposa Health and Human Services Agency, 2024*)
- **Northern Inyo Healthcare District**
 - **Obesity rate:** 28% (*State average: 26% at the time of the survey*)
- **Amador County**
 - **Obesity rate:** 30.1% (*State average: 24.3% at the time of the study*) (*Amador County Public Health, 2023*)

The Rising Obesity Crisis in Rural Areas

Obesity rates are climbing in rural communities, largely due to:

- ✓ **Food deserts** – Limited access to fresh, healthy food
- ✓ **Economic challenges** – Affordability of nutritious food
- ✓ **Limited healthcare access** – Fewer weight management programs
- ✓ **Physical inactivity** – Fewer recreational facilities or safe walking areas

Economic Impact of Obesity

- Obesity costs the U.S. 3-4% of GDP (*World Obesity Foundation, 2025*)
- Reducing obesity rates to 2019 levels could save \$430 billion - \$2.2 trillion
- Workplace productivity losses due to obesity-related illnesses

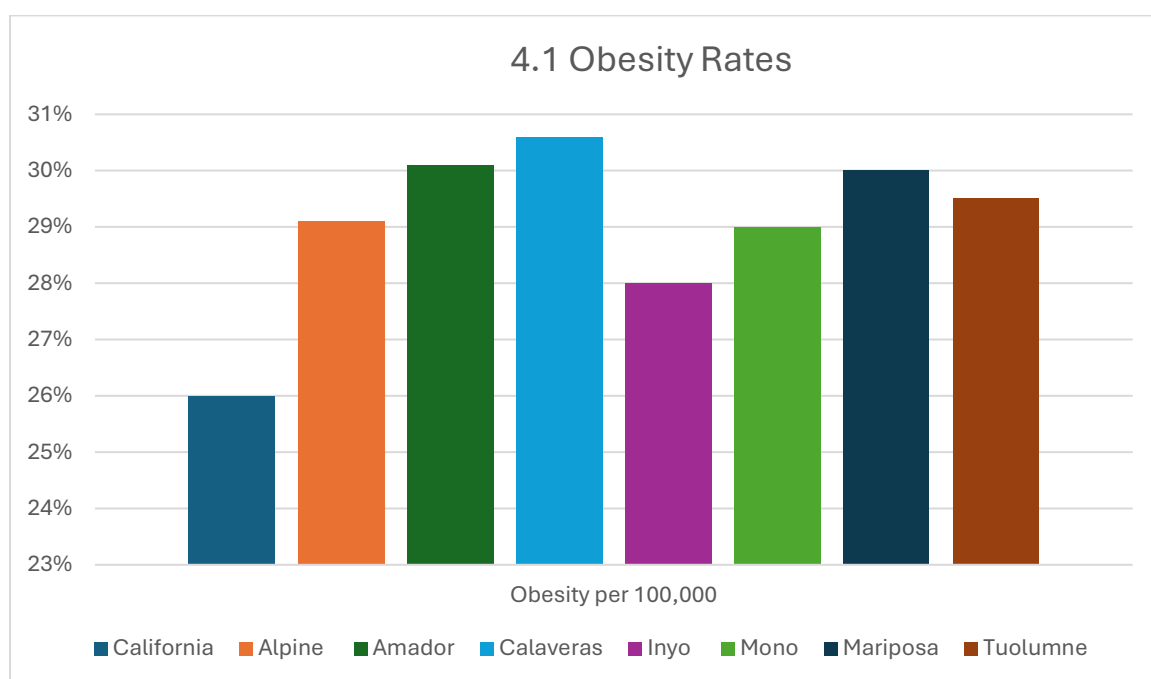
Addressing Obesity in Rural Communities

1. **Expand Nutrition & Food Access Programs**
 - Increase grocery store access in food deserts
 - Promote farmers' markets & local food initiatives
2. **Enhance Public Health & Prevention Efforts**
 - Implement community wellness programs
 - Provide free or low-cost nutrition education
3. **Increase Access to Physical Activity**
 - Invest in walking trails, parks, and fitness centers
 - Offer low-cost community fitness programs
4. **Support Workplace Health Initiatives**
 - Encourage employers to implement wellness programs
 - Provide incentives for healthy behaviors

5. Improve Healthcare Interventions

- Expand obesity screening & management programs
- Strengthen telehealth and rural healthcare access

Obesity is a growing crisis in rural areas, contributing to chronic disease, economic burden, and reduced quality of life. Addressing food insecurity, expanding access to nutritious food and fitness opportunities, and implementing community-based health programs can reduce obesity rates and improve overall well-being.



Alcohol and Substance Abuse in Rural Counties

Kirsch (2023) identifies elevated tobacco and substance use, alongside mental health challenges, as critical contributors to health disparities. According to the), these disparities are often rooted in unequal distribution of social, political, economic, and environmental resources. Consequently, while smoking may exacerbate disparities, it is not necessarily their primary cause.

County-Specific Substance Use Findings

1. **Alpine County**
 - Alcohol/substance abuse cited as having the “greatest impact on overall community health”
 - (*Alpine County Department of Health and Human Services, 2022*)
2. **Mono County (Mammoth Hospital)**
 - Adult smoking rate: 13% (*State average: 10%*)
 - Excessive drinking: 22% (*State average: 19%*)
 - Alcohol-related driving deaths: 46% (*State average: 28%*)
 - (*Mammoth Hospital, 2022*)
3. **Calaveras County**
 - 52% of residents list drug use as a top two safety concern
 - 68% believe more resources are needed for youth drug treatment and prevention
 - 65% believe more resources are needed for alcohol use and abuse
 - (*Calaveras County Public Health, 2024*)
4. **Mariposa County**
 - Adult smoking rate: 15.3%
 - Heavy drinkers: 22% (*3% above state average*)
5. **Tuolumne County**
 - Drug overdose: leading cause of years of life lost
 - Alcohol-related deaths: rank #4
 - Adult smoking rate: 24% (*above state average*)
 - Highest opioid prescription rate in California, double the state average
 - (*Tuolumne County Public Health, 2023*)
6. **Inyo County**
 - Adult smoking rate: 14% (*State average: 10%*)
 - Excessive drinking: 22% (*State average: 19%*)
 - Drug overdose mortality: 40.7% (*State average: 17.3%*)
 - Highest overdose incidence among American Indian population
7. **Amador County**
 - Adult smoking rate: 14%
 - Excessive drinking: 24.7% (*State average: 18.1%*)
 - Drug-induced deaths: 18.9 per 100,000 (*State average: 13.3 per 100,000*)

Treatment Gaps and Challenges

- Lack of Treatment Facilities
 - Amador County: The only substance abuse clinic recently closed; patients must travel to Lodi (*outside the region*)
 - Mono & Inyo Counties: No sobering facilities; individuals often drive 4+ hours to receive help
- Tobacco Cessation Programs
 - Public health departments provide tobacco cessation education
 - Despite these efforts, smoking rates continue to rise
- Youth Vaping and Nicotine Use

- 5.9% of students use e-cigarettes; 1.8% use nicotine pouches (*CDC*)
- These emerging trends are not yet addressed in most community health surveys

Economic Consequences

1. Smoking

- Annual economic impact: Over \$3 billion
- Workplace productivity losses: \$67 billion due to chronic illness
- Cost of premature death: Over \$117 billion
- (*American Lung Association, 2024*)

2. Alcohol Use Disorders

- Annual cost: \$249 billion (*Anthem, 2022*)
- Contributes to employee turnover, absenteeism, tardiness, and premature death

3. Drug Use & Opioid Crisis

- Reduced labor force participation due to overdose, incarceration, and disabilities
- 43% decline in men's labor force participation (1999–2015)
- 50% more unscheduled leave and 44% higher turnover among opioid users
- (*Paris et al., 2023*)

Public Health and Community Needs

1. Sobering Centers & Treatment Facilities

- High demand for a sobering center on the Eastside
- Major obstacles include funding, staffing, and geographic isolation

2. Coordination Across Counties

- Collaboration needed to pool resources, share best practices, and secure funding for treatment facilities

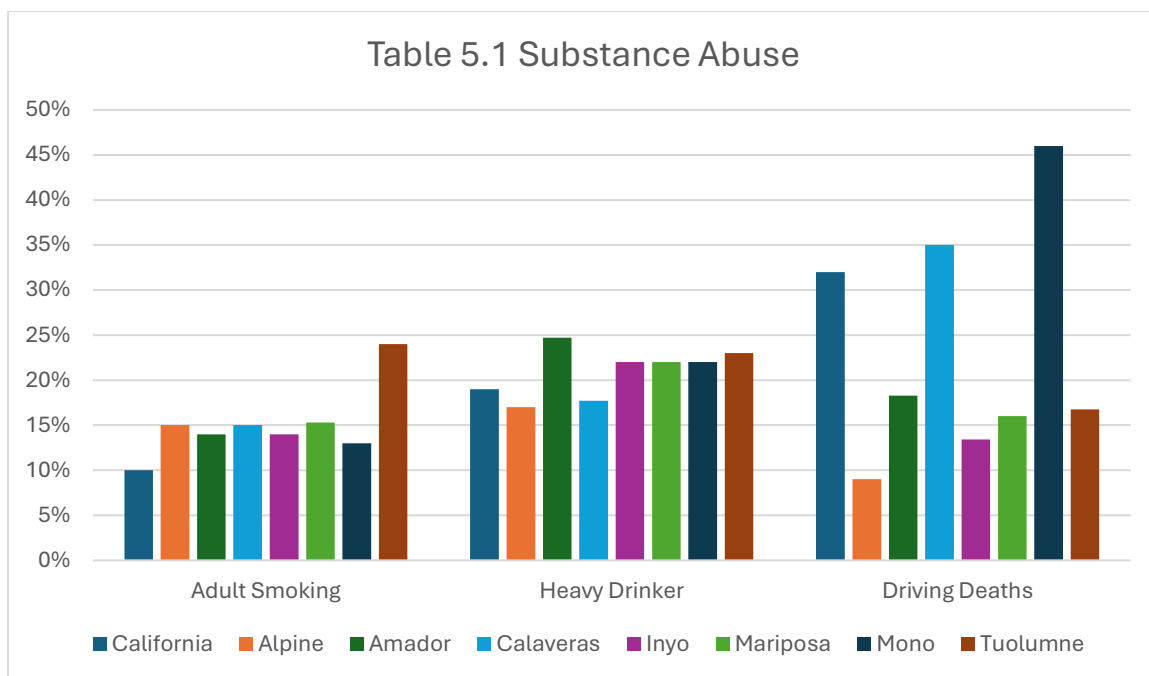
3. Prevention & Education

- Tobacco cessation and youth vaping prevention programs
- Alcohol misuse education in schools and community centers
- Opioid awareness and safe prescribing initiatives

Alcohol and substance abuse remain major health priorities for the rural Sierra region. High smoking and heavy drinking rates, coupled with limited treatment options and long travel distances, create substantial public health and economic burdens. Addressing these issues requires:

- Expanded treatment facilities and sobering centers
- Enhanced prevention programs for youth and adults
- Coordinated county-wide efforts to share resources and best practices

By prioritizing substance abuse treatment, prevention, and education, these counties can improve overall community health, reduce healthcare costs, and strengthen local economies.



Affordable Housing and Living Wage

Overview of Housing Challenges

Many communities in the region face significant barriers to affordable housing. High home prices and a lack of available units make it cost-prohibitive for new residents and challenging for employers to recruit and retain staff.

- **Calaveras County:**
 - 69% of residents cite unavailable or unaffordable housing as their most pressing health-related need.
- **Mammoth Hospital (Mono County):**
 - Identifies a livable wage as the #1 personal priority in its survey (Mammoth Hospital, 2022).
 - Affordable housing ranks as the #2 health need.
 - Hospital purchased dorms and an apartment building to house healthcare providers, mitigating the housing shortage.
- **Mariposa County:**
 - 18% of residents struggle with housing costs.
 - 35.7% rank clean and safe housing as the #2 priority for children and families.
 - 23.3% of the population cannot meet self-sufficiency standards (Mariposa County Health and Human Services Public Health, 2024).

These findings underscore a regional need for both affordable housing and a living wage to support community well-being.

Impact on Homelessness and Health

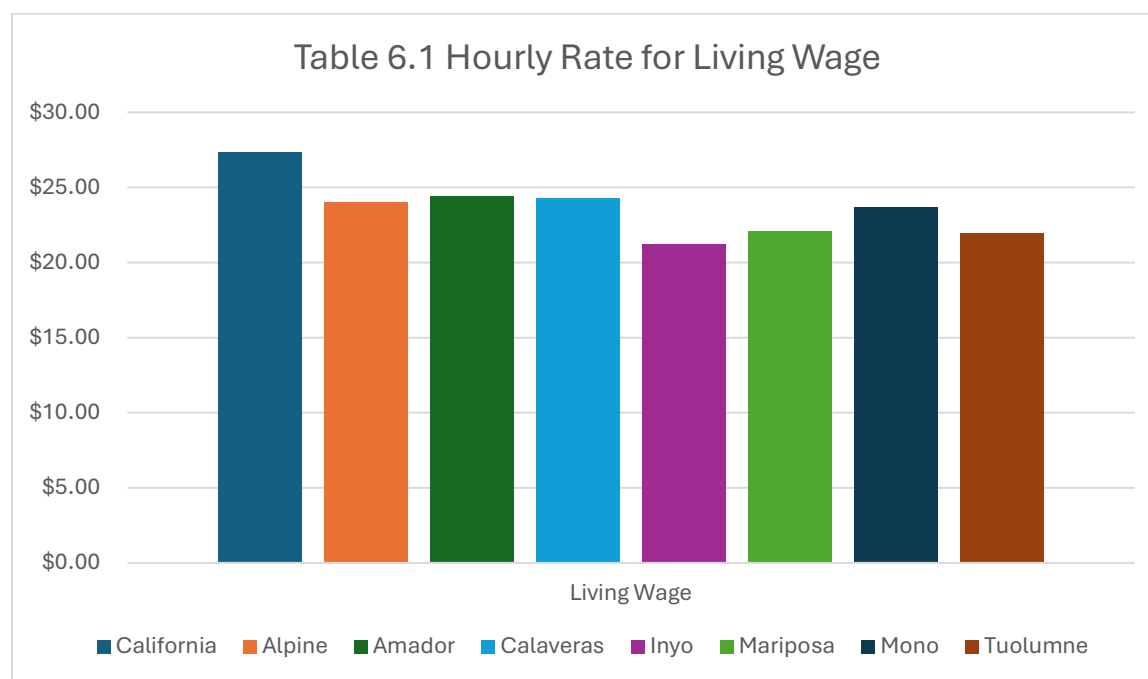
A 2021 health needs assessment in Mariposa County highlights the link between housing insecurity, income loss, and homelessness:

- 61.8% of respondents became homeless due to a significant loss of income.
- 38.2% attributed homelessness to lack of affordable housing.

Homeless individuals often face increased health risks, including nutritional deficiencies, chronic respiratory issues, arthritis, asthma, and depression/anxiety. These conditions can further hinder their ability to secure employment, creating a vicious cycle of poverty and homelessness.

Living Wage Disparities

- **Northern Inyo Hospital District (2024):**
 - Survey participants list affordable housing as the #1 community factor and a living wage as the #1 personal factor.
 - Median household income in Inyo County: \$59,990 (*State average: \$88,930*).
 - Income inequity is slightly lower than the state average, yet still poses challenges.
- **MIT Living Wage Calculator & RentData.org**
 - Table 6.1 provides living wage requirements for a single person.
 - Table 6.2 reflects median rent on a 2-bedroom apartment, highlighting high housing costs relative to incomes.



The “Missing Middle”

While affordable housing initiatives exist, they often exclude those whose income exceeds the threshold for low-income programs but still falls short of covering market-rate housing. This “missing middle” makes recruitment and retention difficult for local employers, including healthcare facilities, which are forced to purchase or subsidize housing for staff.

- Mammoth Lakes
 - Building 400 affordable units, but middle-income earners remain underserved.

Economic Growth Through Healthcare Investment

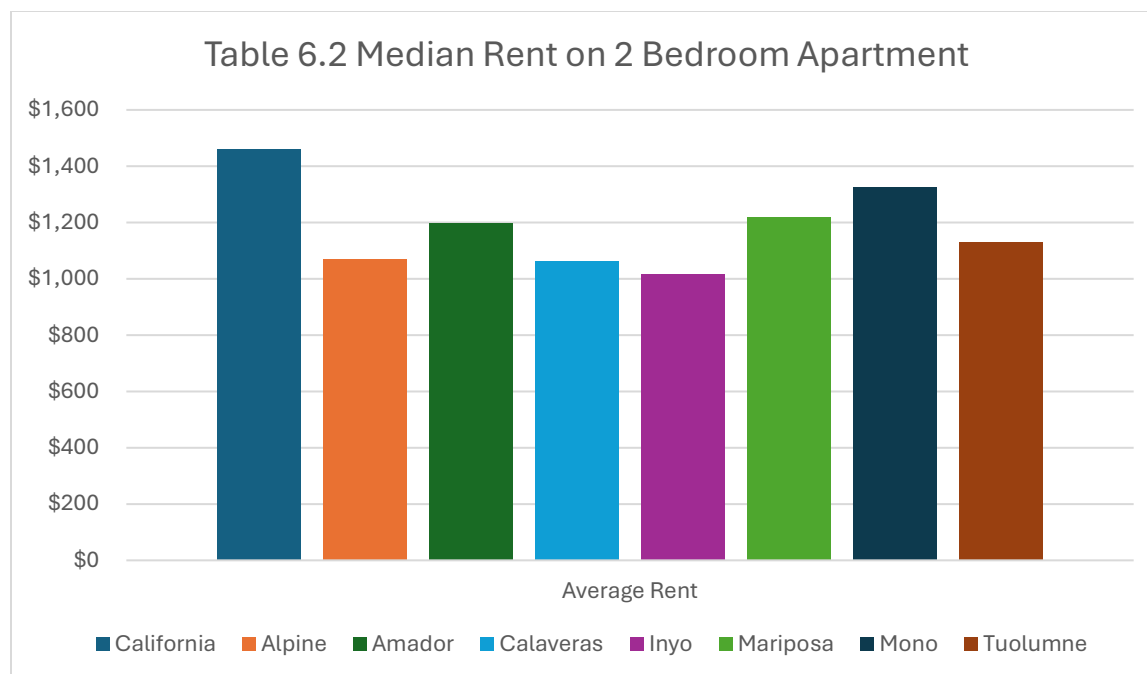
Expanding community healthcare can create high-quality jobs and retain existing positions by:

1. Increasing healthcare facilities and services
 2. Improving working conditions and training
 3. Enhancing job quality with career advancement opportunities
- The healthcare industry is projected to grow 9.6% by 2030, adding 650 new jobs in the region.
 - Opportunities range from home health aides to positions requiring bachelor’s or graduate degrees.
 - Tailored training programs and inclusive recruitment can promote equitable access to these jobs, boosting regional economic stability.

Addressing Talent Recruitment and Retention

1. Local Educational Partnerships
 - Collaborations between businesses, schools, and workforce boards align curricula with job opportunities.
 - Retraining programs for incumbent workers help them transition to higher-paying healthcare roles.
2. Mitigation Strategies
 - Maintain high-road jobs to prevent displacement.
 - Offer livable wages and affordable housing to attract a stable workforce.
3. Regional Cooperation
 - Counties can share resources and pool funding for affordable housing projects.
 - Public-private partnerships can bridge gaps for the “missing middle.”

Affordable housing and a living wage are pivotal to community health and economic resilience in rural regions. High housing costs, low wages, and a shortage of units compound workforce shortages, especially in healthcare. By investing in housing solutions, ensuring competitive wages, and strengthening local job pathways, communities can improve public health, reduce homelessness, and foster long-term economic growth.



Climate Change, Emergency Response, and Preparedness

Overview

Climate change has led to extreme weather conditions that demand robust emergency response and preparedness measures. This section addresses how climate change, emergency response, and preparedness intersect, with snowstorms, wildfires, droughts, and extreme heat posing severe challenges for rural communities.

Extreme Weather Events

1. Record Snowfall in Mono and Inyo Counties (2023)
 - Destroyed roads and isolated entire communities
 - Created shortages of food, water, and medication
 - Required statewide emergency assistance and the establishment of an incident command center in Inyo County
2. Wildfires in Calaveras and Mariposa Counties
 - Calaveras County:
 - 82% of residents cite wildfires as a top concern
 - 53% worry about extreme heat, 48% about drought
 - (*Calaveras County Public Health, 2023*)
 - Mariposa County:
 - 2022 Oak Fire burned 19,000+ acres and destroyed 127 residential buildings

- *(Mariposa County Department of Health and Human Services, 2024)*
- 3. Droughts in Inyo County
 - Moderate or greater drought conditions
 - High wildfire risk relative to state averages
 - *(Inyo Health and Human Services, 2024)*

Workforce Shortages in Emergency Services

- National shortage of paramedics and fire personnel
- Affordable housing and living wage issues hinder recruitment and retention
- Heavy reliance on volunteer responders, resulting in:
 - Prolonged response times
 - Increased risk of loss of life and extensive property damage

The Importance of Preparedness

- Rural public health or health and human services typically oversee disaster preparedness
- Many plans are reactive rather than proactive
- Recruiting and training personnel is crucial to:
 - Prevent loss of life
 - Minimize financial burdens due to large-scale devastation

Mono County's Family Reunification Program

- Established to reunite children with parents in emergencies (e.g., car accidents, school shootings, natural disasters)
- Example: Car accident victims were transported to multiple hospitals, making it difficult for parents to locate their children
- This program could be replicated across counties to streamline emergency coordination

Recommendations for Regional Preparedness

1. Develop Comprehensive Emergency Plans
 - Multi-county partnerships to address snow removal, wildfire control, and evacuation routes
 - Incorporate family reunification strategies into all county plans
2. Strengthen Workforce Recruitment and Retention
 - Competitive wages and affordable housing incentives for emergency personnel
 - Expand training programs and volunteer support to fill critical staffing gaps
3. Improve Infrastructure and Supply Chains
 - Ensure road maintenance and snow clearance for remote communities
 - Stockpile emergency supplies (food, water, medications) for isolated regions
4. Increase Public Awareness and Education
 - Community workshops on evacuation planning, emergency kits, and disaster drills

- School-based programs to teach children how to respond to natural disasters and emergencies
- 5. Seek Funding and Collaborate with State Agencies
 - Leverage federal and state grants for infrastructure improvements and emergency services
 - Collaborate with Cal Fire, FEMA, and public health departments for technical assistance and resource sharing

Climate change-driven extreme weather events—such as record snowfall, wildfires, and droughts—pose significant risks to rural communities. These challenges are exacerbated by workforce shortages, insufficient emergency infrastructure, and limited resources. By coordinating emergency plans, investing in workforce development, and strengthening public health preparedness, counties can reduce disaster impacts, save lives, and protect vital infrastructure.

Mono County’s family reunification program serves as a model for collaborative planning, highlighting the importance of preemptive measures in managing natural disasters and emergency situations. Through regional cooperation and sustained investment, these rural communities can better prepare for and respond to the growing threats posed by climate change.

State and Federal Initiatives

Expanding Healthcare Resources in Rural Areas

State and federal government agencies have launched various initiatives to improve healthcare access in rural communities. By partnering with these agencies, local organizations can secure essential funding through grants and enhance overall healthcare outcomes.

CalAIM (Providing Access and Transforming Health)

- Program Overview:
 - CalAIM is part of the Providing Access and Transforming Health (PATH) initiative.
 - Aims to strengthen infrastructure and capacity for community-based organizations, hospitals, county agencies, and tribal entities.
- Health Equity Focus:
 - Prioritizes historically underserved and under-resourced populations.
 - Enhances access and quality of care for Medi-Cal members by addressing critical gaps in the healthcare system (California Department of Health Care Services, 2024).

Federal Programs and Incentives

- Department of Health and Human Services (HHS):

- Implements programs to improve healthcare access, particularly through telehealth expansion.
- Offers scholarships and loan repayment programs to incentivize healthcare professionals to serve in underserved rural communities.

Children and Youth Behavioral Health Initiative

- Launched in July 2021 by the California Department of Health and Human Services with \$4.4 billion to expand behavioral health services for children and youth.
- California Mental Health Services Authority (CalMHSA) initiatives:
 1. Stigma and discrimination reduction
 2. Suicide prevention
 3. Student mental health

These programs focus on early intervention and mental health support to prevent long-term challenges.

Chronic Disease and Injury Control (California Department of Public Health)

- Division Overview:
 - The California Department of Public Health (CDPH) created the Division of Chronic Disease and Injury Control to tackle conditions accounting for 80% of California's healthcare expenditures (California Department of Public Health, 2023).
- Key Initiatives:
 1. Tobacco control
 2. Chronic disease surveillance and research
 3. Nutrition education and obesity prevention
 4. Safe and active communities

These efforts aim to promote public health and prevent avoidable conditions that strain the healthcare system.

Substance and Addiction Prevention Branch (CDPH)

- Four Key Focus Areas:
 1. Alcohol use research and harm prevention
 2. Problem gambling education and treatment
 3. Overdose surveillance and prevention
 4. Cannabis surveillance and youth prevention
- Overdose Prevention Initiative (OPI):
 - Provides research-driven strategies, toolkits, and education to support substance use prevention.

- Promotes effective prescribing and treatment practices (California Department of Public Health, 2022).

By collaborating with state and federal agencies, rural communities can leverage programs like CalAIM, federal telehealth initiatives, and behavioral health expansions to bridge critical gaps in healthcare access. These coordinated effort supported by scholarship and loan repayment incentives, chronic disease control measures, and substance abuse prevention programs help strengthen local healthcare systems, address health disparities, and improve overall public health outcomes.

Workforce Training and Education

Community Colleges and Allied Health Programs

Rural communities in the region benefit from community colleges that provide low-cost and free education, particularly in allied health fields:

- Columbia College (Western Side)
 - Offers pre-nursing and EMT programs.
 - New in 2025: Medical assistance, nursing assistance, nutrition and dietetics, phlebotomy technician, and Public Health Science.
 - Public Health Science is crucial for chronic disease prevention and obesity management education.
- Cerro Coso College (Eastern Side)
 - Current programs: LVN, Medical Assisting, CNA, and EMT.
 - Developing a Community Health Worker (CHW) certification and Advanced EMT program to provide higher-wage opportunities.

These colleges collaborate with community stakeholders to identify employment and educational needs, ensuring their curricula align with local workforce demands. In March 2025, Cerro Coso will host an Allied Health Advisory Panel to refine program offerings and strengthen partnerships.

Expanding Allied Health Training

Given the ongoing shortage of healthcare workers, the region must expand and diversify its allied health programs:

- Stakeholder Engagement: Colleges work closely with local employers to pinpoint workforce gaps (e.g., nursing, emergency services).
- Degree Pathways: Cerro Coso is exploring an associate's degree for EMT students, helping them transition to bachelor's or master's programs without leaving the area.
- Retention Strategy: By offering robust training opportunities locally, students are more likely to remain in the region after graduation.

Behavioral and Mental Health Services

All counties in the region highlight the need for additional behavioral/mental health services:

- Nationwide Provider Shortage: A lack of trained mental health professionals increases wait times and limits access to care.
- Cerro Coso College is developing a bachelor’s program in behavioral health, enabling local residents to train and remain in the region for employment.
- Substance Abuse and Mental Health Correlation: Enhanced mental health services often reduce substance abuse, addressing a top priority in many counties.
- Inyo County Coalition: Focuses on mental health/substance abuse with maternal health, aiming to create a strategic plan for these critical issues.

Housing Affordability Challenges

High housing costs and limited inventory make it difficult for residents and potential healthcare providers to live and work in the region:

- Mammoth Lakes: Developing 400 affordable units and purchasing land for the “missing middle” who don’t qualify for traditional low-income housing yet still struggle with market rates.
- Mono County: Adopted a transient occupancy tax to fund more affordable housing.
- Mariposa County: Reports 18% struggle with housing costs; 23.3% earn below self-sufficiency standards.
- Recruitment and Retention: Employers like Mammoth Hospital have purchased housing units to accommodate healthcare workers.

Living Wage Initiatives

A living wage is essential to retain employees and strengthen local economies:

- Mammoth Hospital:
 - Recently raised wages for many employees to stay competitive.
 - Upskilling programs allow existing staff to advance into higher-paying roles.
 - Supply and Demand Dynamics:
 - Many small businesses cannot match these wages, causing labor market imbalances.
 - Education and training remain the most effective way to increase earning potential for local workers.
-

Climate Change Preparedness

Impact on Health and Safety

Climate change intensifies wildfires, extreme weather, and natural disasters that threaten both physical and mental health:

- **Wildfires:** Residents may be displaced for months due to toxic chemical clean-up and structural damage, leading to stress, anxiety, and potential health complications.
- **Preparedness Efforts:** Recent extreme events have raised awareness, prompting communities to learn from past incidents and invest in future resilience.

Funding and Planning

Despite the urgent need for climate resilience:

- **Budget Reductions:** Climate and emergency preparedness programs are often the first to face cuts.
- **Regional Collaboration:** Creating comprehensive plans for wildfire response, evacuation, and disaster relief can mitigate the long-term impacts of climate change on rural areas.

Strengthening workforce training and education—especially in allied health and behavioral health—is crucial to addressing healthcare shortages in the region. Coupled with affordable housing and livable wages, these efforts can attract and retain a skilled workforce, improve public health, and boost local economies.

Simultaneously, climate change preparedness must remain a priority, given the disproportionate risks faced by rural communities. By collaborating with educational institutions, local employers, and government agencies, the region can foster resilience, build a robust healthcare sector, and ensure a healthier future for all residents.

Opportunities

1. **Expand Training Programs**
 - **Collaboration with Community Colleges:** Develop or enhance healthcare certification and degree programs to grow local talent and address workforce shortages.
2. **Telehealth Expansion**
 - **Specialist Access:** Implement robust telehealth services to reach remote areas, ensuring patients can consult with specialists without extensive travel.
3. **Public Health Campaigns**
 - **Education & Prevention:** Launch health promotion and disease prevention programs to inform the community, reduce healthcare costs, and improve overall wellness.

4. **Mobile Health Services**
 - **Serving Underserved Populations:** Deploy mobile health units to reach isolated communities, providing essential care such as screenings, vaccinations, and basic treatments.
5. **Partnerships**
 - **Resource Alignment:** Strengthen collaboration among healthcare providers, educational institutions, and community organizations to pool resources and enhance service delivery.
6. **Innovative Care Models**
 - **Shared Resources & Collaboration:** Explore joint ventures, shared resource models, and collaborative agreements to maximize healthcare efficiency and effectiveness.
7. **Workforce Housing**
 - **Attract & Retain Talent:** Invest in affordable housing initiatives for healthcare workers, helping to stabilize the workforce and encourage long-term community engagement.

Challenges

1. **Workforce Strategies**
 - **Recruitment & Training:** Address the shortage of healthcare professionals by developing targeted recruitment campaigns and robust training programs.
2. **Funding Constraints**
 - **Sustainable Financing:** Secure reliable funding for facility upgrades, workforce development, and public health initiatives to maintain and expand services.
3. **Geographic Barriers**
 - **Isolation & Transportation:** Overcome long travel distances and limited transportation options that hinder access to healthcare, particularly in rural or remote areas.
4. **Healthcare Disparities**
 - **Equitable Access & Outcomes:** Focus on bridging gaps in care for low-income, minority, and other underserved populations to ensure fair and consistent healthcare delivery.
5. **Technological Barriers**
 - **Infrastructure & Adoption:** Invest in technology—such as broadband internet and electronic health record systems—to support telehealth and streamline care coordination.
6. **Community Engagement**
 - **Inclusive Planning:** Involve local residents in healthcare decision-making processes to ensure services meet actual community needs and foster trust.
7. **Environmental Risks**
 - **Climate Change & Natural Disasters:** Develop resilient infrastructure and emergency response plans to mitigate the impact of extreme weather and environmental hazards on healthcare services.

By focusing on these opportunities and proactively addressing these challenges, community healthcare systems can improve access, enhance quality, and build resilience for the future.

Conclusion

Kirsch (2023) identified three main priorities for the region, yet a closer examination of each county reveals a broader set of concerns. This report has outlined these additional priorities and their potential economic impact, highlighting that while smoking does contribute to chronic diseases and increased years of life lost, it is not the foremost concern for many counties. Instead, healthcare access, mental health, living wages, and affordable housing consistently emerge as top priorities among survey participants. Furthermore, climate change preparedness is a growing concern for communities recently affected by extreme weather events.

Although childcare did not appear prominently in these surveys, its economic burden warrants further exploration. For example, while affordable childcare is typically considered no more than 7% of a family's income, Inyo County residents spend 34%, compared to 27% statewide. Addressing such complex issues will not happen overnight; however, this analysis offers a roadmap for funding and strategic planning to tackle them.

Moving forward, collaboration and resource-sharing across neighboring counties and community stakeholders will be crucial. By working together, the region can develop sustainable solutions that improve public health outcomes, strengthen local economies, and enhance overall community resilience.

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