Sutter Health

Sutter Health
Sutter Surgical Hospital North Valley

SUTTER SURGICAL HOSPITAL NORTH VALLEY

2019 Community Health Needs Assessment

Mission
We enhance the well-being of people in the communities we serve through a not-for-profit commitment to compassion and excellence in healthcare services.

Vision
Sutter Health leads the transformation of healthcare to achieve the highest levels of quality, access, and affordability.

Community Health Needs Assessment
The following report contains Sutter Surgical Hospital North Valley's 2019 Community Health Needs Assessment (CHNA), which is used to identify and prioritize the significant health needs of the communities we serve. CHNAs are conducted once every three years, in collaboration with other healthcare providers, public health departments and a variety of community organizations. This CHNA report guides our strategic investments in community health programs and partnerships that extend Sutter Health's not-for-profit mission beyond the walls of our hospitals, improving health and quality of life in the areas we serve.

2019 Community Health Needs Assessment

Conducted on behalf of

**Rideout Memorial Hospital
DBA Adventist Health and Rideout
726 4th Street
Marysville, California 95901**

and

**Sutter Surgical Hospital North Valley
455 Plumas Boulevard
Yuba City, California 95991**

Conducted by

**COMMUNITY
HEALTH INSIGHTS**

May 2019

Acknowledgements

We are deeply grateful to all those who contributed to the community health needs assessment conducted on behalf of Rideout Memorial Hospital and Sutter Surgical Hospital North Valley. Many dedicated community health experts and members of various social-service organizations serving the most vulnerable members of the community gave their time and expertise as key informants to help guide and inform the findings of the assessment. Many community residents also participated and volunteered their time to tell us what it is like to live in the community and shared the challenges they face trying to achieve better health. To everyone who supported this important work, we extend our heartfelt gratitude.

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Report Summary

Purpose

The purpose of this community health needs assessment (CHNA) was to identify and prioritize significant health needs of the Rideout Memorial Hospital (RMH) and Sutter Surgical Hospital North Valley (SSHNV) joint service area. The priorities identified in this report help to guide nonprofit hospitals' community health improvement programs and community benefit activities as well as their collaborative efforts with other organizations that share a mission to improve health. This CHNA report meets the requirements of the Patient Protection and Affordable Care Act (and in California, Senate Bill 697) that nonprofit hospitals conduct a community health needs assessment at least once every three years. The CHNA was conducted by Community Health Insights (www.communityhealthinsights.com).

Community Definition

The definition of the community served was the primary service area jointly shared by RMH and SSHNV. This area was defined by five ZIP Codes: 95901, 95953, 95961, 95991, and 95993. This service area was designated because the majority of patients served by both RMH and SSHNV resided in these ZIP Codes. RMH is located in Marysville, CA, and SSHNV is located in Yuba City, CA. Separated by the Feather River, these cities are located adjacent to one another and are part of the Yuba City Metropolitan Statistical Area as designated by the US Office of Management and Budget.[1] The service area is home to over 147,000 community residents, and encompassed portions of both Sutter and Yuba Counties. The rural community is rich in diversity along a number of dimensions.

Assessment Process and Methods

The data used to conduct the CHNA were identified and organized using the widely recognized Robert Wood Johnson Foundation's County Health Rankings model.[2] This model of population health includes many factors that impact and account for individual health and well-being. Further, to guide the overall process of conducting the assessment, a defined set of data-collection and analytic stages were developed. These included the collection and analysis of both primary (qualitative) and secondary (quantitative) data. Qualitative data included 13 one-on-one and group interviews with 35 community health experts, social-service providers, and medical personnel. Further, 53 community residents participated in four focus groups across the service area.

Focusing on social determinants of health to identify and organize secondary data, datasets included measures to describe mortality and morbidity and social and economic factors such as income, educational attainment, and employment. Further, the measures also included indicators to describe health behaviors, clinical care (both quality and access), and the physical environment.

Process and Criteria to Identify and Prioritize Significant Health Needs

Primary and secondary data were analyzed to identify and prioritize significant health needs. This began by identifying 10 potential health needs (PHNs). These PHNs were those identified in previously conducted CHNAs. Data were analyzed to discover which, if any, of the PHNs were present in the service area. After these were identified, PHNs were prioritized based on rankings provided by primary data

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[1] See: https://www.labormarketinfo.edd.ca.gov/definitions/metropolitan-areas.html
[2] See: http://www.countyhealthrankings.org/

sources. Data were also analyzed to detect emerging health needs, if any, beyond those 10 PHNs identified in previous CHNAs.

List of Prioritized Significant Health Needs

The following significant health needs were identified and are listed below in prioritized order.
1. Access to Mental/Behavioral/Substance Abuse Services
2. Prevention of Disease and Injury through Knowledge, Action, and Access to Resources
3. Access to Basic Needs Such as Housing, Jobs, and Food
4. Access and Functional Needs
5. Access to Quality Primary Care Health Services
6. Access to Specialty and Extended Care
7. Active Living and Healthy Eating
8. Safe and Violence-Free Environment

Resources Potentially Available to Meet the Significant Health Needs

In all, 135 resources were identified in the service area that were potentially available to meet the identified significant health needs. The identification method included starting with the list of resources from the 2016 CHNA, verifying that the resources still existed, and then adding newly identified resources into the 2019 CHNA report.

Conclusion

This CHNA report details the health needs of the greater Yuba City/Marysville community. It provides an overall health and social examination of the RMH and SSHNV service areas and an examination of the needs of community members living in parts of the service area where the residents experience more health disparities. The CHNA provides a comprehensive profile to guide decision-making for the implementation of community health improvement efforts. This report also serves as an example of a collaboration between local healthcare systems to provide meaningful insights to support improved health in the communities they serve.

Introduction and Purpose

Both state and federal laws require that nonprofit hospitals conduct a community health needs assessment (CHNA) to identify and prioritize the significant health needs of the communities they serve. The results of the CHNA guide the development of implementation plans aimed at addressing identified health needs. Federal regulations define a *health need* accordingly: "Health needs include requisites for the improvement or maintenance of health status in both the community at large and in particular parts of the community (such as particular neighborhoods or populations experiencing health disparities)."[3]

This report documents the processes, methods, and findings of a CHNA conducted on behalf of Rideout Memorial Hospital (RMH) located at 726 4th Street, Marysville, California 95901, and Sutter Surgical Hospital North Valley (SSHNV) located at 455 Plumas Boulevard, Yuba City, California 95991. These hospitals' primary service area includes the communities of the Yuba-Sutter area or the Yuba City metropolitan statistical area which covers both Sutter and Yuba Counties. At the time of this assessment the total population of the service area was 147,721.

RMH is an affiliate of Adventist Health, a nonprofit healthcare system. SSHNV is an affiliate of Sutter Health, also a nonprofit healthcare system. The CHNA was conducted over a period of five months, beginning January 2019 and concluding May 2019. This CHNA report meets requirements of the Patient Protection and Affordable Care Act and California Senate Bill 697 that nonprofit hospitals conduct a community health needs assessment at least once every three years.

Community Health Insights (www.communityhealthinsights.com) conducted the CHNA. Community Health Insights is a Sacramento-based research-oriented consulting firm dedicated to improving the health and well-being of communities across Northern California. Community Health Insights has conducted multiple CHNAs over the previous decade.

Organization of This Report

This report follows federal guidelines issued on how to document a CHNA. First, the prioritized listing of significant health needs identified through the CHNA is described, along with the process and criteria used in identifying and prioritizing these needs. Next, the methods used to conduct the CHNA are described, including how data were collected and analyzed. This includes a description of how RMH and SSHNV solicited and considered the input received from persons representing the broad interests of the community. Then, the community served by RMH and SSHNV and how the community was identified are described. This is followed by a description of the Community Health Vulnerability Index and the identification of Communities of Concern for the service area. Resources potentially available to meet these needs are identified and described after this. Finally, a summary is included of the impact of actions taken by both RMH and SSHNV to address significant health needs identified in its previous CHNA.

A detailed methodology section titled "2019 CHNA Technical Section" is included later in this report. This section includes an in-depth description of the methods followed in collection, analysis, and results of data to identify and prioritize significant health needs.

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[3] *Federal Register*, Vol. 79, No. 250, (Wednesday, December 31, 2014), p. 78,963. Department of the Treasury, Internal Revenue Service.

Findings

Prioritized, Significant Health Needs

Primary and secondary data were analyzed to identify and prioritize the significant health needs in the service area. In all, eight significant health needs were identified. After these were identified they were prioritized based on an analysis of primary data sources that mentioned the health need as a priority. The findings are displayed in Figure 1.

In the figure, the blue portion of the bar represents the percentage of primary data sources that referenced the health need. This was combined with the percentage of times any theme associated with a health need was mentioned as one of the top three health needs in the community, as seen in the green portion of the bar.
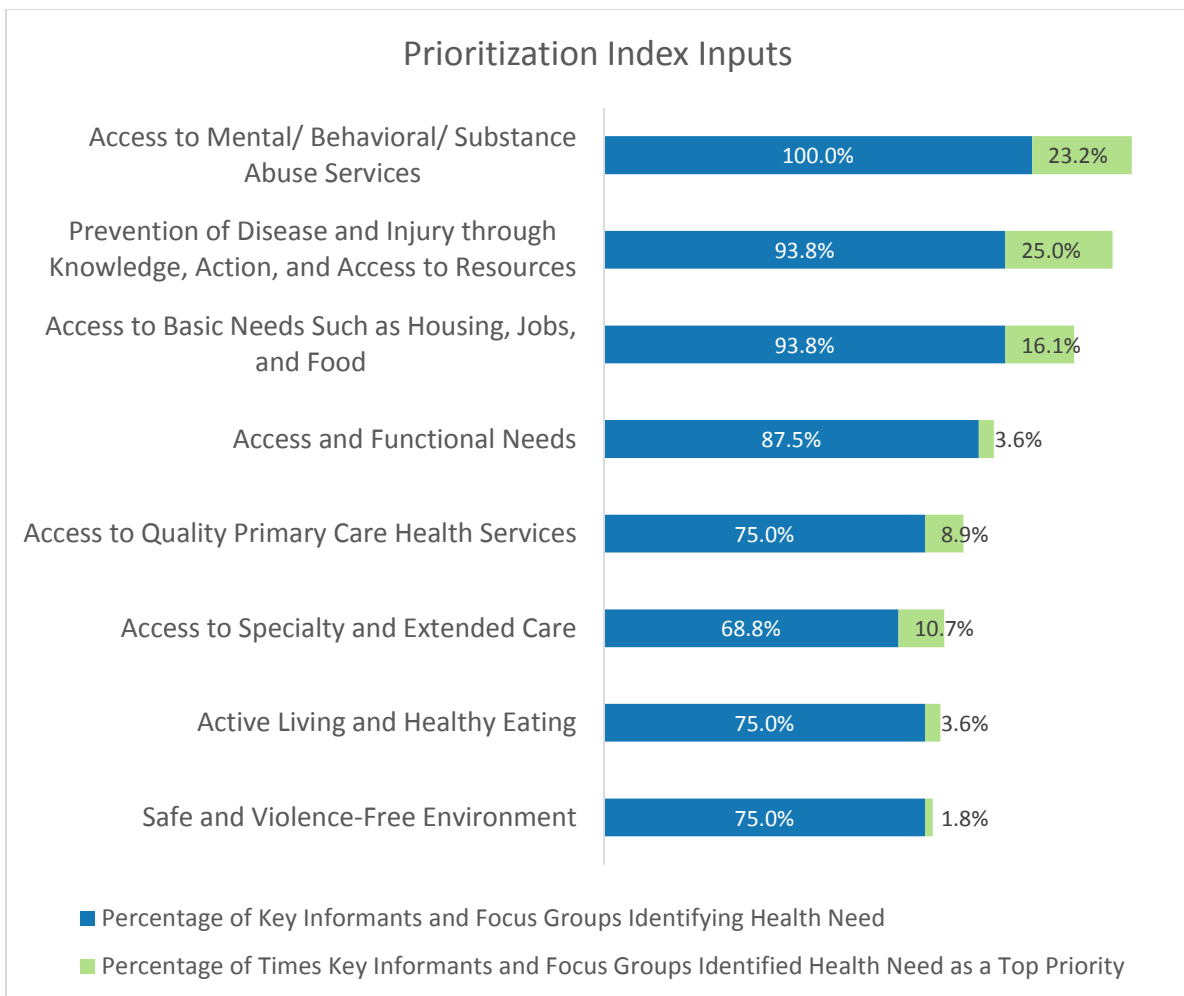
Figure 1: Prioritized, significant health needs for RMH and SSHNV service area

The significant health needs are described below. Those secondary data indicators used in the CHNA that performed poorly compared to benchmarks are listed in the table below each significant health need. Qualitative themes that emerged during data analysis are also provided in the table. (A full listing of all quantitative indicators can be found in the technical section of this report).

1. Access to Mental, Behavioral, and Substance-Abuse Services

Individual health and well-being are inseparable from individual mental and emotional outlook. Coping with daily life stressors is challenging for many people, especially when other social, familial, and economic challenges occur concurrently. Adequate access to mental, behavioral, and substance-abuse services helps community members obtain additional support when needed.

Descriptive Quotes from Interviews

- "Resources are not here to help those who want to make changes. 90% [of substance abusers] want recovery and don't have the resources here."
- "On the health side, having that reduced level of stigma with folks understanding what behavioral health services are and how they can improve their lives, actually transforms communities."
- "A healthy community means there is no stigma or fear to access behavior health services."
- "The global issue of the discrimination and stigma level for folks that need to access behavioral care is a root cause of our homeless issue."
- "There is almost a generational loss of hope…we find ourselves giving benefits to someone whose mother and mother's mother needed assistance."

Quantitative Indicators	Qualitative Themes
- Life Expectancy - Liver Disease Mortality - Suicide Mortality - Poor Mental Health Days - Poor Physical Health Days - Drug Overdose Deaths - Excessive Drinking - Mental Health Providers - HPSA Mental Health - Psychiatry Providers - Social Associations	- Substance use - Methamphetamine use is an ongoing issue in the community - Heroin use is an issue in the community - Legalization of marijuana has resulted in an increase of use - More illegal drugs are appearing in schools than in the past - Prescription abuse appears to be an issue in the community - Yuba City and Marysville are impacted by the opioid crisis seen in other communities - Opioids are easier to access than methamphetamine, exacerbating their use in the community - Tobacco usage is driving cancer rates in the community - There are an excessive number of smoke shops throughout the area - Mental and Behavioral Health - Community has a severe lack of mental and behavioral health providers and services - Mental and behavioral health services are only available to the most extreme cases in the area - Adverse childhood experiences are going untreated in the community - The stigma in accessing mental and behavioral health services that creates an obstacle for those needing these services - Social media is triggering isolation in youth, impacting mental health - Suicide rates in the area exceed those at the State and Federal levels - Many issues surrounding homelessness in the community are connected to behavioral and mental health issues

2. Prevention of Disease and Injury through Knowledge, Action, and Access to Resources

Knowledge is important for individual health and well-being, and efforts aimed at prevention are powerful vehicles to improve community health. When community residents lack adequate information on how to prevent, manage, and control their health conditions, those conditions tend to worsen. Prevention efforts focused on reducing cases of injury and infectious disease control (e.g., sexually

transmitted infection [STI] prevention, influenza shots) and intensive strategies for the management of chronic diseases (e.g., diabetes, hypertension, obesity, and heart disease) are important for community health improvement.

Descriptive Quotes from Interviews
- "The level of behavioral health education in this area is strikingly low."
- "Investing in our educational system, knowing there is a direct link between education and poverty and inequality."
- "If you trace things back all the way to the beginning, it's based on education."

Quantitative Indicators		Qualitative Themes

• Infant Mortality
• Child Mortality
• CLD Mortality
• Diabetes Mortality
• Heart Disease Mortality
• Influenza and Pneumonia Mortality
• Kidney Disease Mortality
• Liver Disease Mortality
• Stroke Mortality
	• Suicide Mortality
	• Unintentional Injury Mortality
	• Drug Overdose Deaths
	• Excessive Drinking
	• Adult Obesity
	• Physical Inactivity
	• Teen Birth Rate
	• Adult Smokers
	• Motor Vehicle Crash Deaths
		• Nutrition education needed, including how to select and prepare healthy foods
		• Youth
		   o Youth need education on dangers of vaping
		   o More after-school activities needed for youth
		   o Obesity education and prevention services needed
		   o Need more youth centers in community
		• STI rates appear to be on the rise in the area
		• Greater focus needed on educational attainment and vocational training opportunities
		• There is an overall lack of health literacy in the community
		• Chronic disease prevention and management education services needed throughout the community

3. Access to Basic Needs, Such as Housing, Jobs, and Food
Access to affordable and clean housing, stable employment, quality education, and adequate food for good health are vital for survival. Maslow's Hierarchy of Needs[4] demonstrates that only when people have their basic physiological and safety needs met can they become engaged members of society and self-actualize or live to their fullest potential, including enjoying good health.

Descriptive Quotes from Interviews
- "In order to be healthy, you have to have a place to live."
- "This [housing] is the basic stepping stone for everybody's health."
- "The fact that we have senior women, many that do receive SI benefits, living on our streets is tragic."
- "We know many of our kids go hungry on the weekends. Kids are coming to school hungry and not well cared for. They are stuffing their pockets with food at school just so they have something to eat."

Quantitative Indicators	Qualitative Themes
• Life Expectancy • Infant Mortality • Age-Adjusted Mortality • Child Mortality	• Housing o The shortage of affordable housing is a predominate issue throughout the community, impacting every aspect of community health

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[4] McLeod, S. (2014). *Maslow's Hierarchy of Needs*. Retrieved from: http://www.simplypsychology.org/maslow.html

Quantitative Indicators	Qualitative Themes

• Premature Age-Adjusted Mortality
• Years of Potential Life Lost
• HPSA Medically Underserved Area
• High School Graduation
• Some College
• Unemployed
• Children with Single Parents
• Social Associations
• Free and Reduced Lunch
• Children in Poverty
• Median Household Income
• Uninsured
• mRFEI
• Limited Access to Healthy Food
	o There are too many obstacles—credit checks, income requirement—preventing low-income residents from finding affordable housing
	   o The Paradise fire has decreased the availability of housing in the area
	   o Low-income housing is poor quality, residents report feeling unsafe in their homes
	   o Housing for those on fixed incomes, especially seniors, is a challenge to find and afford
	• Food insecurity is experienced by many in the community
	• Employment opportunities in the community are lacking
	• Youth from the area cannot find jobs after finishing school and leave the area in search of employment opportunities
	• Salaries in the area do not appear to have kept pace with inflation and other rising costs
	• The community is not thriving economically
	• There has been a slow recovery in the area from the recession
	• Some community residents work multiple jobs and still cannot make ends meet
	• Majority of jobs in the community are low income jobs

4. Access and Functional Needs – Transportation and Physical Disability

Having access to transportation services to support individual mobility is a necessity of daily life. Without transportation, individuals struggle to meet their basic needs, including those that promote and support a healthy life. Examining the number of people that have a disability is also an important indicator for community health in an effort to ensure that all community members have access to necessities for a high quality of life.

Quantitative Indicators	Qualitative Themes
• Percent with Disability	• There is limited bus service in many outlying areas such as Live Oak • Navigating the bus system is difficult for the elderly • Limited transportation options create an obstacle for those seeking healthcare services • Dial-a-ride has limited access • Low income residents struggle to afford bus fare • Bus schedules have limited services on weekends

5. Access to Quality Primary Care Health Services

Primary care resources include community clinics, pediatricians, family practice physicians, internists, nurse practitioners, pharmacists, telephone advice nurses, and similar. Primary care services are typically the first point of contact when an individual seeks healthcare. These services are the front line in the prevention and treatment of common diseases and injuries in a community.

Quantitative Indicators	Qualitative Themes
• Life Expectancy • Cancer Mortality • Child Mortality • CLD Mortality • Diabetes Mortality	• Encounters with providers is often short and rushed • Many people avoid seeing a physician due to excessive wait times; instead, some use the emergency department • Some travel out of the community for timely access to specialists

Quantitative Indicators	Qualitative Themes
• Heart Disease Mortality • Influenza and Pneumonia Mortality • Kidney Disease Mortality • Liver Disease Mortality • Stroke Mortality • Cancer Colon and Rectum • Cancer Lung and Bronchus • HPSA Primary Care • HPSA Medically Underserved Area • Mammography Screening • Primary Care Physicians • Preventable Hospital Stays • Uninsured	• Access to primary care is more difficult with Medi-Cal • Health insurance premiums are a barrier for many to enroll in a plan • Some report that scheduling an appointment in the local FQHCs can take months • There are limited providers that accept Medi-Cal • There is a chronic shortage of providers practicing in the community • The area has only one emergency department and it does not have the capacity to serve the entire community • There is a shortage of available emergency services in the area • The housing shortage impacts the community's ability to attract providers to the area—many live outside of the community

6. Access to Specialty and Extended Care

Extended care services, which include specialty care, is care devoted to a particular branch of medicine and focus on the treatment of a particular disease. Primary and specialty care go hand-in-hand, and without access to specialists such as endocrinologists, cardiologists, and gastroenterologists, community residents are often left to manage chronic diseases such as diabetes and high blood pressure on their own. In addition to specialty care, extended care refers to care needed in the community that supports overall physical health and wellness and that extends beyond primary care services, such as skilled nursing facilities, hospice care, in-home health care, and the like.

Descriptive Quote from Interviews

- "The truth is that if you need specialty care, you have to move in order to get it. UC Davis will only provide services to Sacramento County residents. People have to physically relocate in order to receive the care they need because it is not available in this area."

Quantitative Indicators	Qualitative Themes
• Life Expectancy • Cancer Mortality • CLD Mortality • Diabetes Mortality • Heart Disease Mortality • Kidney Disease Mortality • Liver Disease Mortality • Stroke Mortality • Cancer Lung and Bronchus • Psychiatry Providers • Specialty Care Providers • Preventable Hospital Stays	• Limited access to specialist in the community, especially if resident is low income and under or un-insured • Many must travel to Roseville or Sacramento to see a specialist • Appears to be a heightened shortage of OB/GYN practicing in the area • Some in the community relocated to be closer to specialists • Low inventory of housing makes the area unattractive when trying to recruit specialists to the area

6. Active Living and Healthy Eating

Physical activity and eating a healthy diet are extremely important for one's overall health and well-being. Frequent physical activity is vital for prevention of disease and maintenance of a strong and healthy heart and mind. When access to healthy foods is challenging for community residents, many

turn to unhealthy foods that are convenient, affordable, and readily available. Communities experiencing social vulnerability and poor health outcomes are often overloaded with fast food and other establishments where unhealthy food is sold.

Descriptive Quote from Interview
- "We have multiple vape stores but nowhere close to buy an apple."

Quantitative Indicators	Qualitative Themes
- Cancer Mortality - Diabetes Mortality - Heart Disease Mortality - Kidney Disease Mortality - Stroke Mortality - Cancer Colon and Rectum - Limited Access to Healthy Food - mRFEI - Access to Exercise - Physical Inactivity - Adult Obesity	- Limited access in the community to affordable, healthy foods - The limited number of parks inhibit recreation activities for families - Many community residents see fast food consumption as a "normal" and regular diet - The community needs more walkable and bike-friendly areas—the built environment does not promote walking - The community lacks outdoors spaces where residents can be active - Farmers markets are not available in less affluent areas - There is a high density of fast food and convenience store establishments in the area - Marysville lacks a parks and recreation program - Green space should be considered in any new development

8. Safe and Violence-Free Environment

Feeling safe in one's home and community are fundamental to overall health. Next to having basic needs met (e.g., food, shelter, clothing) is physical safety. Feeling unsafe affects the way people act and react to everyday life occurrences and can have significant negative impacts on physical and mental well-being.[5]

Descriptive Quote from Interviews
- "It is alarming the amount of CPS reports that are done. There is a tremendous amount of kids that suffer at the hands of their caregiver."

Quantitative Indicators	Qualitative Themes
- Life Expectancy - Poor Mental Health Days - Homicides - Motor Vehicle Crash Deaths - Social Associations	- Resident indicated that lower income neighborhoods have high crime rates - Many feel lower income neighborhoods have higher substance use rates - Hmong are often discriminated against - No street lights in some parts of the community make it unsafe after dark - Reports that Latino children are bullied and discriminated against in schools - Youth have limited options after school to have safe places to go - Many homeless women feel unsafe in the community - The lack of sidewalks increases pedestrian risk for injury - Gang activity in some neighborhoods creates unsafe environments for residents, especially youth - There is a perception that Marysville has limited law enforcement capacity - Low income housing is environmentally unsafe, full of mold

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[5] Lynn-Whaley, J., & Sugarmann, J. (July 2017). *The Relationship Between Community Violence and Trauma*. Los Angeles: Violence Policy Center.

Quantitative Indicators	Qualitative Themes
	• Reports that dog bites are an issue in some parts of the community

Populations and Locations Experiencing Health Disparities

Health disparities are defined as "preventable differences in the burden of disease, injury, violence, or opportunities to achieve optimal health experienced by populations, and defined by factors such as race or ethnicity, gender, education or income, disability, geographic location or sexual orientation."[6] The table below describes populations and specific communities in the RMH and SSHNV service area identified through qualitative data analysis that were indicated as experiencing health disparities. Interview participants were asked, "What specific groups of community members experience health issues the most?" and "What specific geographic locations struggle with health issues the most?" The groups and locations that were noted are listed below in Table 1.

Table 1: Populations and Geographic Locations Experiencing Disparities

Populations	Geographic Locations
Hispanic	Linda Community
Elderly Caucasian Females	South Yuba City/Garden Highway area
Afghanistan	Live Oak Community
African American	Olivehurst Community
Low-income Caucasian	
Elderly	
Hmong	
Native American	
Homeless	

Method Overview

Conceptual and Process Models

The data used to conduct the CHNA were identified and organized using the widely recognized Robert Wood Johnson Foundation's County Health Rankings model.[7] This model of population health includes the many factors that impact and account for individual health and well-being. Further, to guide the overall process of conducting the assessment, a defined set of data collection and analytic stages were developed. For a detailed review of methods, see the technical section.

Public Comments from Previously Conducted CHNAs

Regulations require that nonprofit hospitals include written comments from the public on their previously conducted CHNAs and most recently adopted implementation strategies. Both RMH and SSHNV requested written comments from the public on the 2016 CHNA and their recently adopted implementation strategies through communitybenefit@ah.org (RMH) and SHCB@sutterhealth.org (SSHNV).

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[6] Center for Disease Control and Prevention (2008). *Health Disparities Among Racial/Ethnic Populations*. Community Health and Program Services (CHAPS): Atlanta: U.S. Department of Health and Human Services.
[7] See: http://www.countyhealthrankings.org/

At the time of the development of this CHNA report neither RMH nor SSHNV had received written comments. However, input from the broader community was considered and taken into account for the 2019 CHNA through key informant interviews and focus groups. Both RMH and SSHNV will continue to solicit public comments and ensure that these comments are considered as community input in the development of future CHNAs.

Data Used in the CHNA

Data collected and analyzed included both primary or qualitative data and secondary or quantitative data. Primary data included 13 interviews with 35 community health experts as well as 4 focus groups conducted with a total of 53 community residents. (A full listing of all participants can be seen in the technical section of this report.)

Secondary data included four datasets selected for use in the various stages of the analysis. A combination of mortality and socioeconomic datasets collected at subcounty levels was used to identify portions of the hospital service area with greater concentrations of disadvantaged populations and poor health outcomes. A set of county level indicators was collected from various sources to help identify and prioritize significant health needs. Additionally, socioeconomic indicators were collected to help describe the overall social conditions within the service area. Health outcome indicators included measures of both mortality (length of life) and morbidity (quality of life). Health factor indicators included measures of 1) health behaviors, such as diet and exercise and tobacco, alcohol, and drug use; 2) clinical care, including access to quality of care; 3) social and economic factors such as race/ethnicity, income, educational attainment, employment, neighborhood safety, and similar; and 4) physical environment measures, such as air and water quality, transit and mobility resources, and housing affordability. In all, 64 different health outcome and health factor indicators were collected for the CHNA.

Data Analysis

Primary and secondary data were analyzed to identify and prioritize the significant health needs within the RMH and SSHNV service area. This included identifying 10 PHNs in these communities. These potential health needs were those identified in previously conducted CHNAs. Data were analyzed to discover which, if any, of the PHNs were present in the service area. After these were identified, health needs were prioritized based on an analysis of primary data sources that described the PHN as a significant health need.

For an in-depth description of the processes and methods used to conduct the CHNA, including primary and secondary data collection, analysis, and results, see the technical section of this report.

Description of Community Served

The definition of the community served was the primary service area jointly shared by RMH and SSHNV. This area was defined by five ZIP Codes: 95901, 95953, 95961, 95991, and 95993. This service area was designated because the majority of patients served by both RMH and SSHNV resided in these ZIP Codes. RMH is located in Marysville, CA, and SSHNV is located in Yuba City, CA. Separated by the Feather River, these cities are located adjacent to one another and are part of the Yuba City Metropolitan Statistical Area as designated by the US Office of Management and Budget,[8] which is located approximately 40 miles due north of California's capital—Sacramento. The service area is home

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[8]See: https://www.labormarketinfo.edd.ca.gov/definitions/metropolitan-areas.html

to over 147,000 community residents and encompasses portions of both Sutter and Yuba Counties. The rural community is rich in diversity along a number of dimensions. The service area is shown in Figure 2.
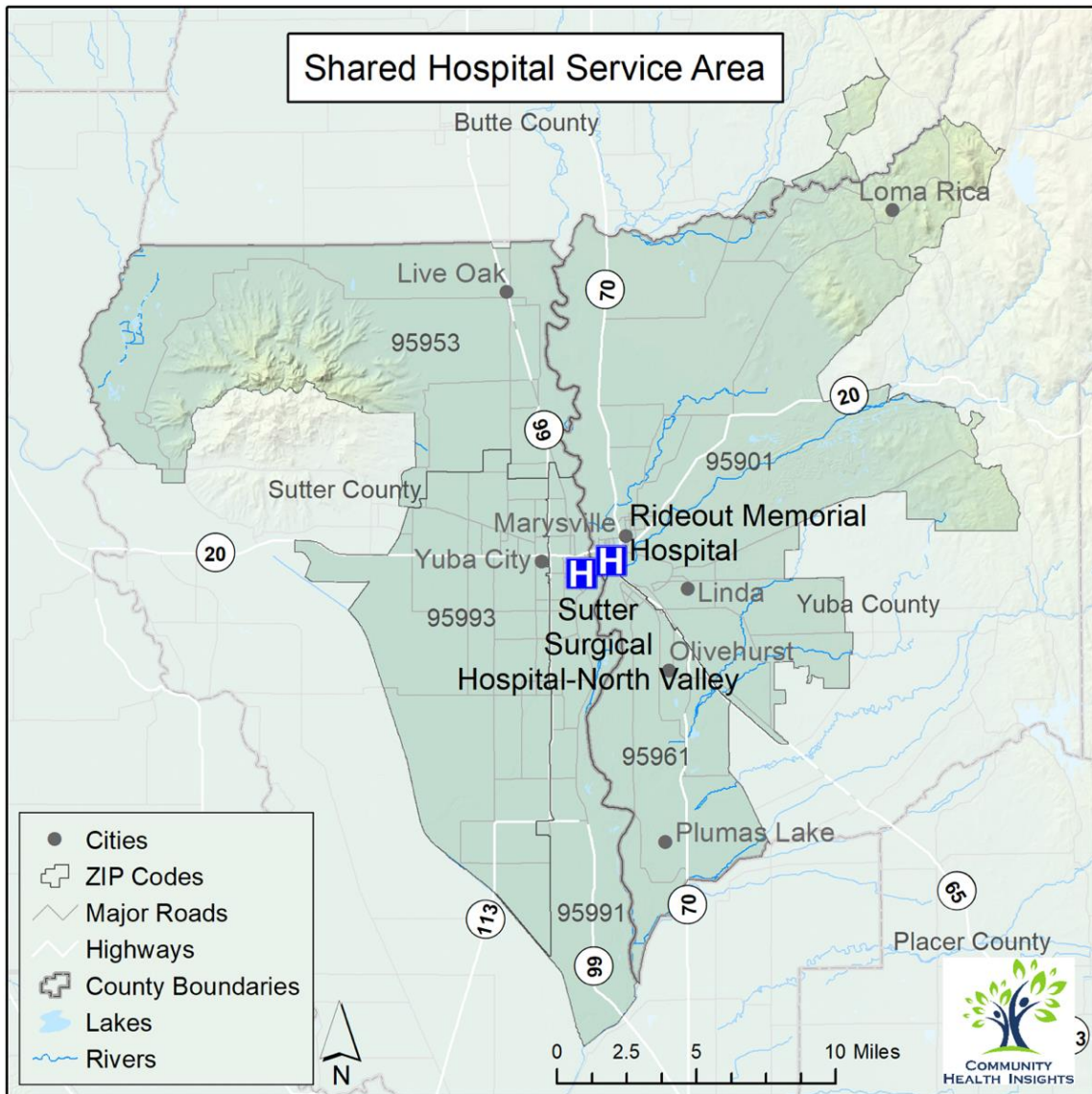
Figure 2: Community served by RMH and SSHNV

Population characteristics for each ZIP Code in the service area are presented in Table 2. These are compared to the state and county characteristics for descriptive purposes. Any ZIP Code with rates that varied negatively or performed poorly when compared to the state or county benchmarks is highlighted.

Table 2: Population Characteristics for Each ZIP Code Located in the RMH and SSHNV Service Area

ZIP Code	Total Population	% Minority	Median Age	Median Income	% Poverty	% Unemployed	% Uninsured	% No HS Graduation	% Living in High Housing Costs	% with Disability
95901	32,804	44.9	31.3	$45,973	25.3	12.7	13.3	18.5	44.1	17.0
95953	10,476	64.7	35.2	$46,275	21.5	10.6	16.7	34.8	37.5	15.1
95961	27,141	51.1	30.9	$48,416	18.7	14.5	11.2	22.9	40.2	17.6
95991	40,683	52.8	32.9	$43,939	20.6	12.8	14.5	21.5	43.5	14.1
95993	36,617	52.5	39.0	$65,044	14.7	10.7	11.3	18.1	31.4	12.1
Sutter	95,406	52.0	35.6	$52,943	17.5	11.2	13.2	20.8	37.0	13.5
Yuba	73,897	43.0	32.2	$48,739	20.8	12.7	12.2	17.8	41.0	16.9
California	38,654,206	61.6%	36.0	$63,783	15.8%	8.7%	12.6%	17.9%	42.9%	10.6%

(Source: 2012-2016 American Community Survey 5-year estimates; U.S. Census Bureau)

Community Health Vulnerability Index

Figure 3 displays the Community Health Vulnerability Index (CHVI) for the RMH and SSHNV service area. The CHVI is a composite index used to help describe the distribution of health disparities within the service area. Like the *Community Needs Index* or CNI[9] on which it was based, the CHVI combines multiple sociodemographic indicators (listed below) to help identify those locations experiencing health disparities. Higher CHVI values indicate a greater concentration of groups more likely to experience disparities.

- Percentage Minority (Hispanic or Nonwhite)
- Population 5 Years or Older Who Speak Limited English
- Percentage 25 or Older without a High School Diploma
- Percentage Unemployed
- Percentage Uninsured
- Percentage Families with Children in Poverty
- Percentage Households 65 years or Older in Poverty
- Percentage Single-Female-Headed Households in Poverty
- Percentage Renter-Occupied Housing Units

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[9] Barsi, E. and Roth, R. (2005) The Community Needs Index. *Health Progress*, Vol. 86, No. 4, pp. 32-38.
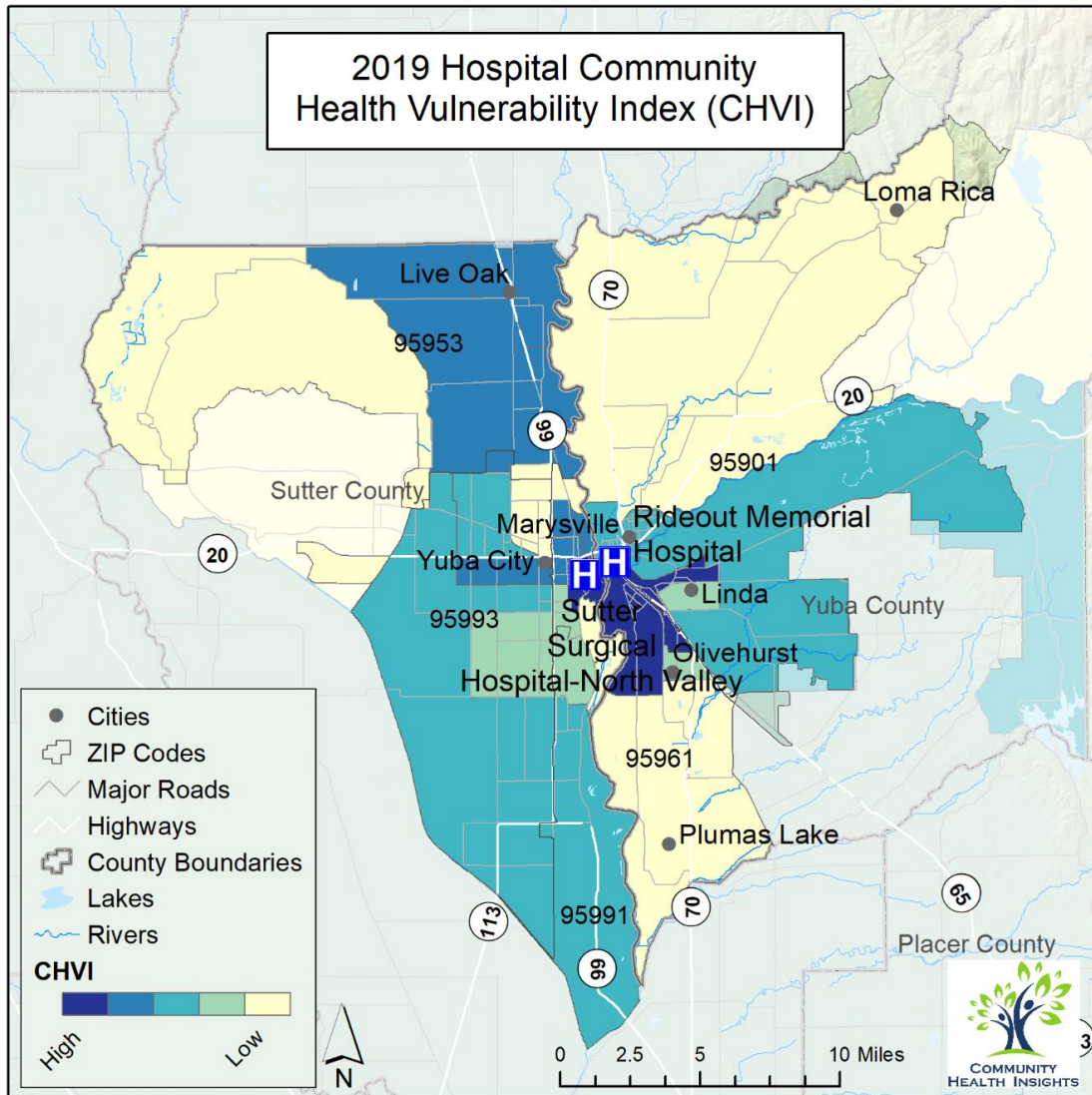
Figure 3: Community Health Vulnerability Index for RMH and SSHNV

In the figure, the census tracts with the darkest shading had the highest overall CHVI scores (greatest vulnerability). These included areas in Linda, Marysville, Olivehurst, and Yuba City. The community of Live Oak and portions of Yuba City also had higher CHVI scores. These areas likely had a higher concentration of community members experiencing health disparities.

Communities of Concern

Communities of Concern are geographic areas within the service area that have the greatest concentration of poor health outcomes and are home to more medically underserved, low-income, and diverse populations at greater risk for poorer health. Communities of Concern are important to the overall CHNA methodology because, after the service area is assessed more broadly, they allow for a focus on those portions of the region likely experiencing the greatest health disparities. Geographic Communities of Concern were identified using a combination of primary and secondary data sources. (Refer to the technical section of this report for an in-depth description of how these are identified).

Analysis of both primary and secondary data revealed four ZIP Codes that met the criteria to be classified as a Community of Concern. These are noted in Table 3, with the census population provided for each, and are displayed in Figure 4.

Table 3: Identified Communities of Concern for the RMH and SSHNV Service Area

ZIP Code	Community/Area	Population
95901	Marysville	32,804
95953	Live Oak	10,476
95961	Olivehurst	27,141
95991	South Yuba City	40,683
Total Population in Communities of Concern		111,104
Total Population in Hospital Service Area		147,721
% of Service Area Population in Community of Concern		75.2%

(Source: 2012–2016 American Community Survey 5-year estimates; U.S. Census Bureau)
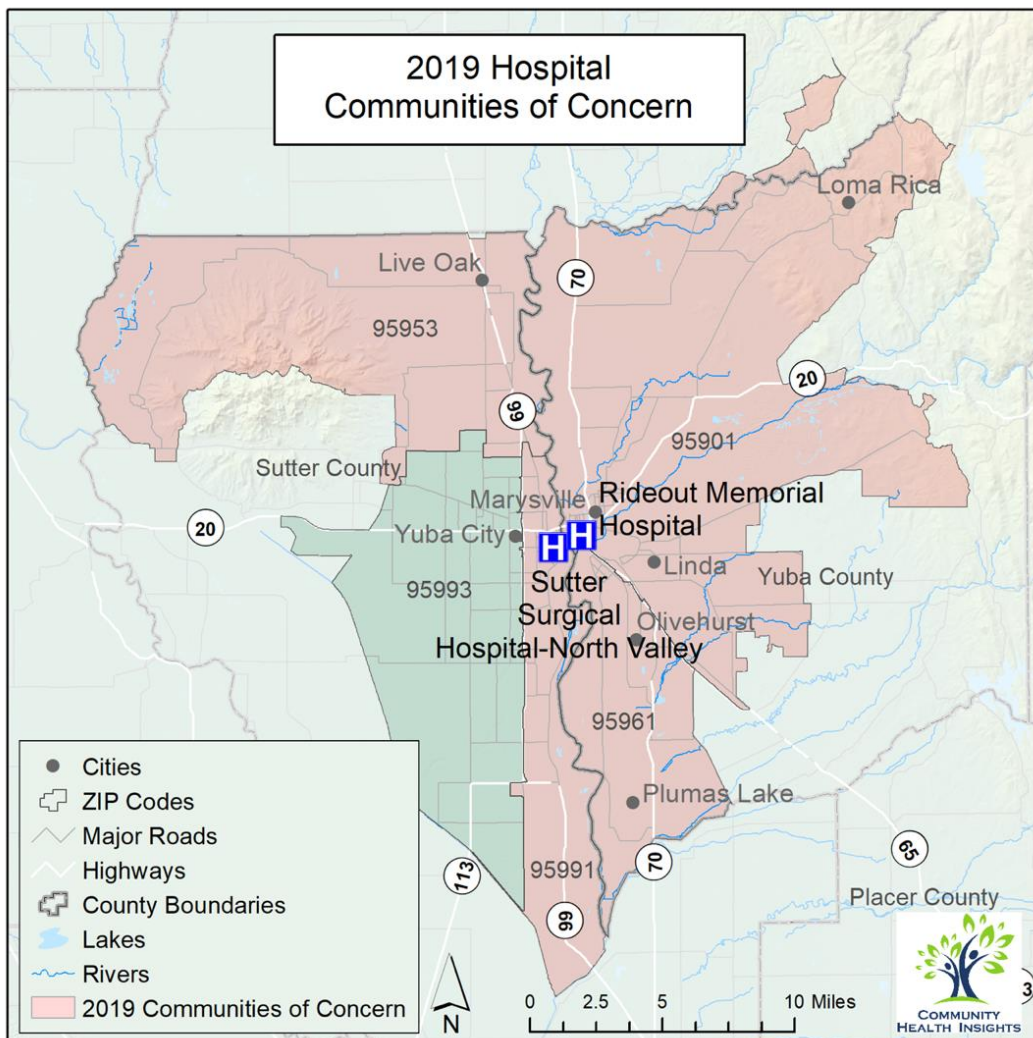
Figure 4: RMH and SSHNV Service area Communities of Concern

In rural locations ZIP Codes often cover large geographical areas. Portions of these areas may be sparsely populated or unpopulated as they are reserved for agricultural use or left undeveloped. This is the case with many of the ZIP Codes in Table 3.

As a result, two additional steps were taken to further highlight those portions of these ZIP Code Communities of Concern in which disadvantaged populations were likely to be concentrated. First, we reviewed the distribution of populations in Census tracts in the county to see where in the ZIP Codes higher population concentrations were found. This is shown in Figure 5.
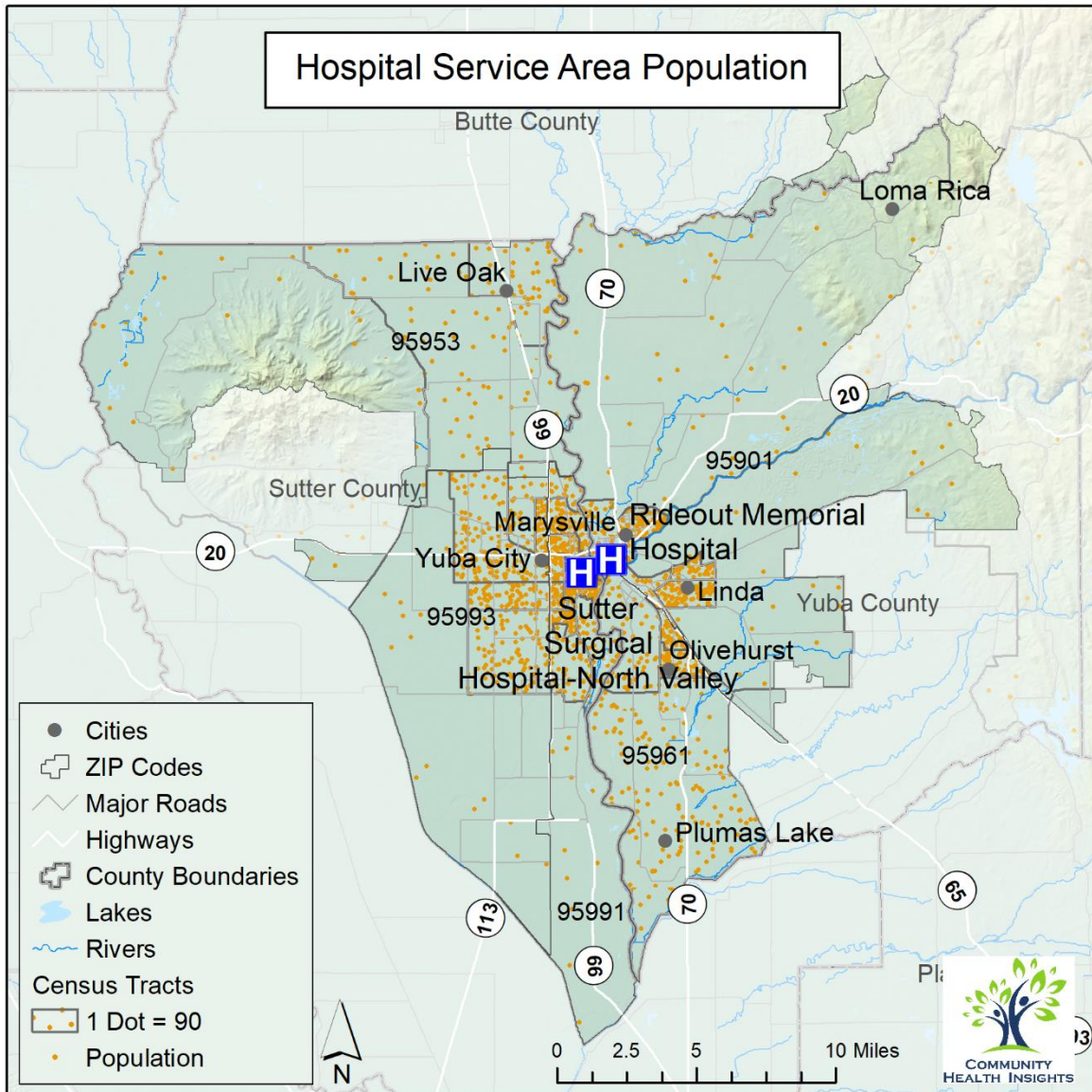
Figure 5: RMH and SSHNV service area population distribution

In Figure 5, each gold dot represents 90 residents. Grey borders show Census tract boundaries. These show the distribution of the population across the service.

Next, we identified the Census tracts within each ZIP code that had the highest CHVI values (refer to Figure 3). This led to an identification of Census tracts that provided a more spatially refined representation of the Communities of Concern within the identified ZIP Codes. These are displayed in Figure 6.
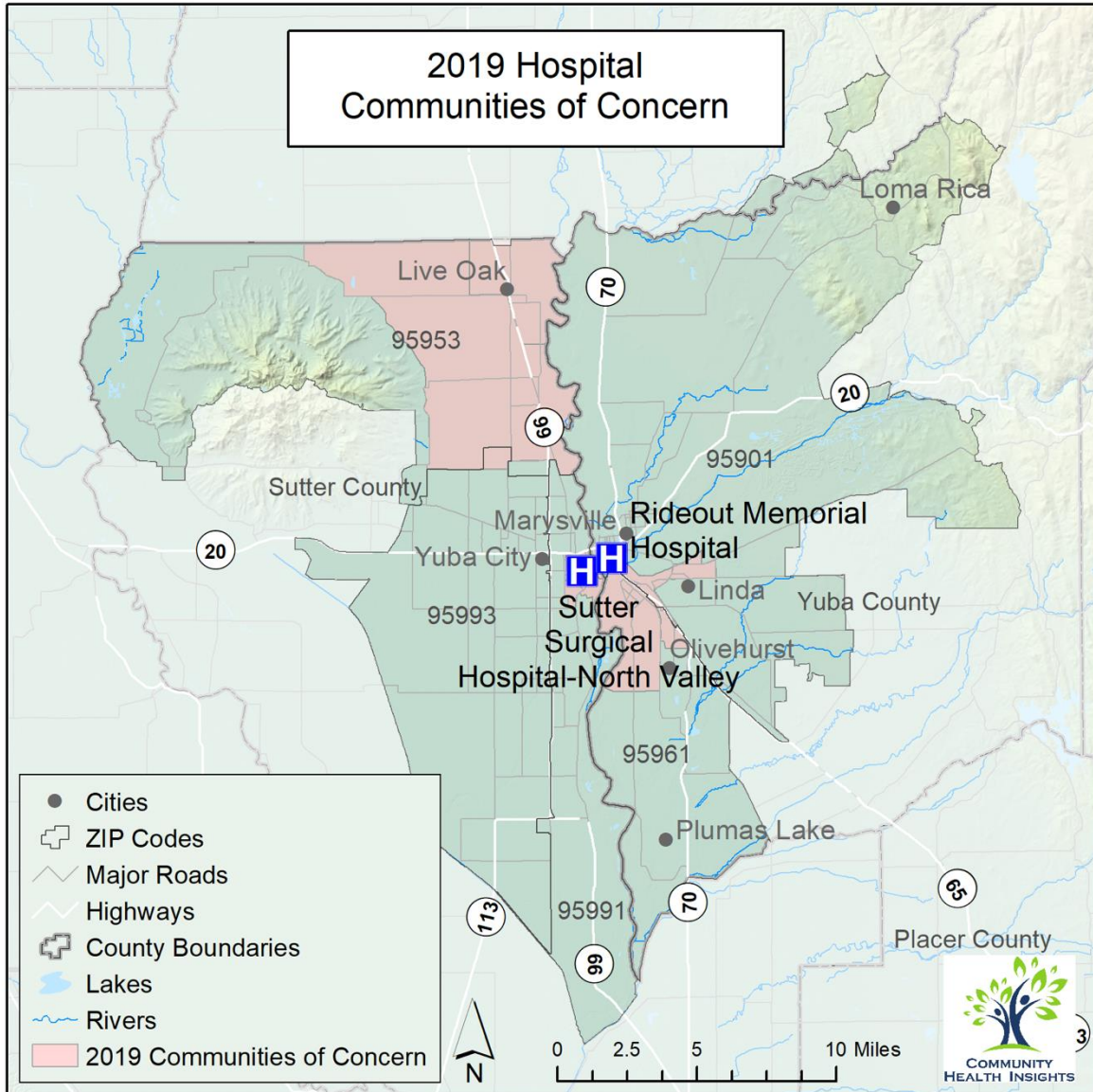
Figure 6: Census tract areas designated as Communities of Concern for RMH and SSHNV

Resources Potentially Available to Meet the Significant Health Needs

In all, 135 resources were identified in the RMH and SSHNV service area that were potentially available to meet the identified significant health needs. These resources were provided by a total of 55 social-service, nonprofit, and governmental organizations, agencies, and programs identified in the CHNA. The identification method included starting with the list of resources from the previous (2016) RMH and SSHNV CHNA report, verifying that the resources still existed, and then adding newly identified

resources into the 2019 CHNA report. Examination of the resources revealed the following numbers of resources for each significant health need as shown in Table 4.

Table 4: Resources Potentially Available to Meet Significant Health Needs in Priority Order

Significant Health Needs (in Priority Order)	Number of resources
Access to Mental/Behavioral/Substance Abuse Services	24
Prevention of Disease and Injury through Knowledge, Action, and Access to Resources	25
Access to Basic Needs Such as Housing, Jobs, and Food	23
Access and Functional Needs	3
Access to Quality Primary Care Health Services	24
Access to Specialty and Extended Care	16
Active Living and Health Eating	16
Safe and Violence-Free Environment	4
Total Resources	*135*

For more specific examination of resources by significant health need and by geographic location, as well as the detailed method for identifying these, see the technical section of this report.

Impact/Evaluation of Actions Taken by Hospitals

Regulations require that each hospital's CHNA report include "an evaluation of the impact of any actions that were taken since the hospital facility finished conducting its immediately preceding CHNA to address the significant health needs identified in the hospital facility's prior CHNA(s) (p. 78969)."[10] The impact of the actions taken by both RMH and SSHNV can be found in Appendix A of this document.

Conclusion

Nonprofit hospitals play a vital role in the communities they serve. In addition to providing for the delivery of newborns and the treatment of disease, these important institutions work with and alongside other organizations to improve community health and well-being by working to prevent disease, improve access to healthcare, promote health education, eliminate health disparities, and similar tasks. CHNAs play an important role in helping nonprofit hospitals and other community organizations determine where to focus community benefit and improvement efforts, including geographic locations and specific populations living in their service area.

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[10] *Federal Register*, Vol. 79, No. 250, (Wednesday, December 31, 2014). Department of the Treasury, Internal Revenue Service.

2019 CHNA Technical Section

The following section presents a detailed account of data collection, analysis, and results for the Rideout Memorial Hospital (RMH) and Sutter Surgical Hospital—North Valley (SSHNV) joint service area, or hospital service area (HSA).

Results of Data Analysis

Secondary Data

The tables and figures that follow show the specific values for the health need indicators used as part of the health need identification process. Each indicator value for Yuba and Sutter Counties were compared to the California state benchmark. Indicators where performance was worse in either county than in California are highlighted. The associated bar charts show rates for both counties compared to California state rates.

Length of Life

Table 5: Length of Life Indicators Compared to State Benchmarks

Indicators	Description	Yuba	Sutter	California
Infant Mortality	Infant deaths per 1,000 live births	5.5	5.4	4.5
Child Mortality	Deaths among children under age 18 per 100,000	55.7	40.6	38.5
Life Expectancy	Life expectancy at birth in years	76.1	79.0	80.8
Age-Adjusted Mortality	Age-adjusted deaths per 100,000	974.8	788.0	662.7
Premature Age-Adjusted Mortality	Age-adjusted deaths among residents under age 75 per 100,000	452.4	361.7	268.8
Years of Potential Life Lost	Age-adjusted years of potential life lost before age 75 per 100,000	8,548.3	6,684.1	5,217.3
Stroke Mortality	Deaths per 100,000	43.5	49.3	37.5
CLD Mortality	Deaths per 100,000	65.3	52.1	34.9
Diabetes Mortality	Deaths per 100,000	19.5	22.1	22.1
Heart Disease Mortality	Deaths per 100,000	186.4	197.7	157.3
Hypertension Mortality	Deaths per 100,000	10.8	12.3	12.6
Cancer Mortality	Deaths per 100,000	173.0	176.7	153.4
Liver Disease Mortality	Deaths per 100,000	13.5	15.7	13.2
Kidney Disease Mortality	Deaths per 100,000	14.1	10.7	8.3
Suicide Mortality	Deaths per 100,000	15.3	15.5	10.8
Unintentional Injury Mortality	Deaths per 100,000	55.3	36.8	31.2
Alzheimer's Mortality	Deaths per 100,000	21.5	25.1	35.0
Influenza and Pneumonia Mortality	Deaths per 100,000	17.2	17.7	16.0
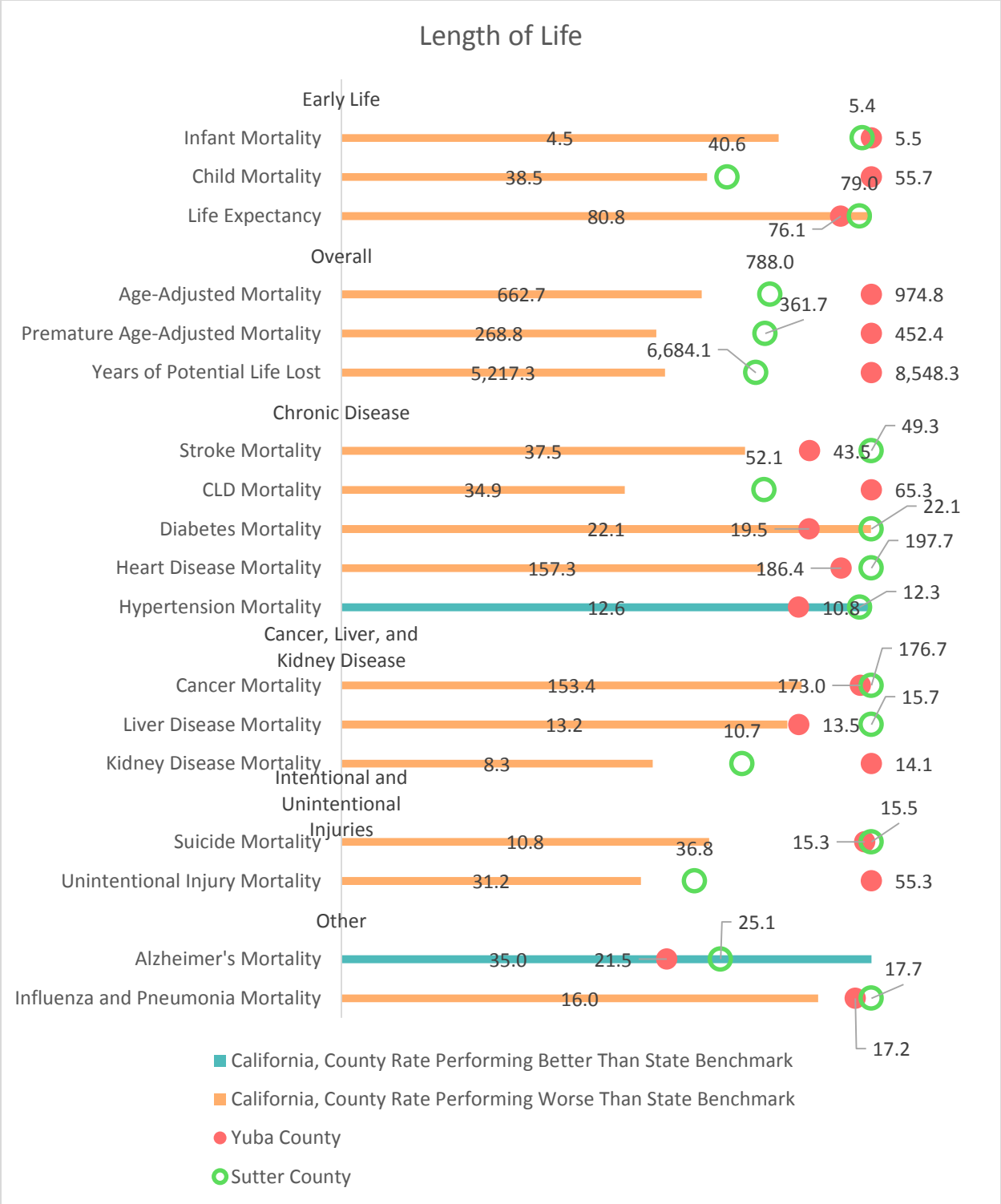
Figure 7: Length of life indicators

Quality of Life

Table 6: Quality of Life Indicators Compared to State Benchmarks

Indicators	Description	Yuba	Sutter	California
Diabetes Prevalence	Percentage age 20 and older with diagnosed diabetes	7.7%	8.5%	8.5%
Low Birth Weight	Percentage of live births with birthweight below 2500 grams	6.1%	6.3%	6.8%
HIV Prevalence	Persons age 13 or older with a(n) Human Immunodeficiency Virus (HIV) infection per 100,000	78.0	92.3	376.4
Percentage with Disability	Percentage of total civilian noninstitutionalized population with a disability	16.9%	13.5%	10.6%
Poor Mental Health Days	Age-adjusted average number of mentally unhealthy days reported in past 30 days	4.0	3.7	3.5
Poor Physical Health Days	Age-adjusted average number of physically unhealthy days reported in past 30 days	4.1	3.8	3.5
Cancer Female Breast	Age-adjusted incidence per 100,000	112.7	108.4	120.6
Cancer Colon and Rectum	Age-adjusted incidence per 100,000	38.0	33.0	37.1
Cancer Lung and Bronchus	Age-adjusted incidence per 100,000	59.3	54.3	44.6
Cancer Prostate	Age-adjusted incidence per 100,000	98.0	89.3	109.2
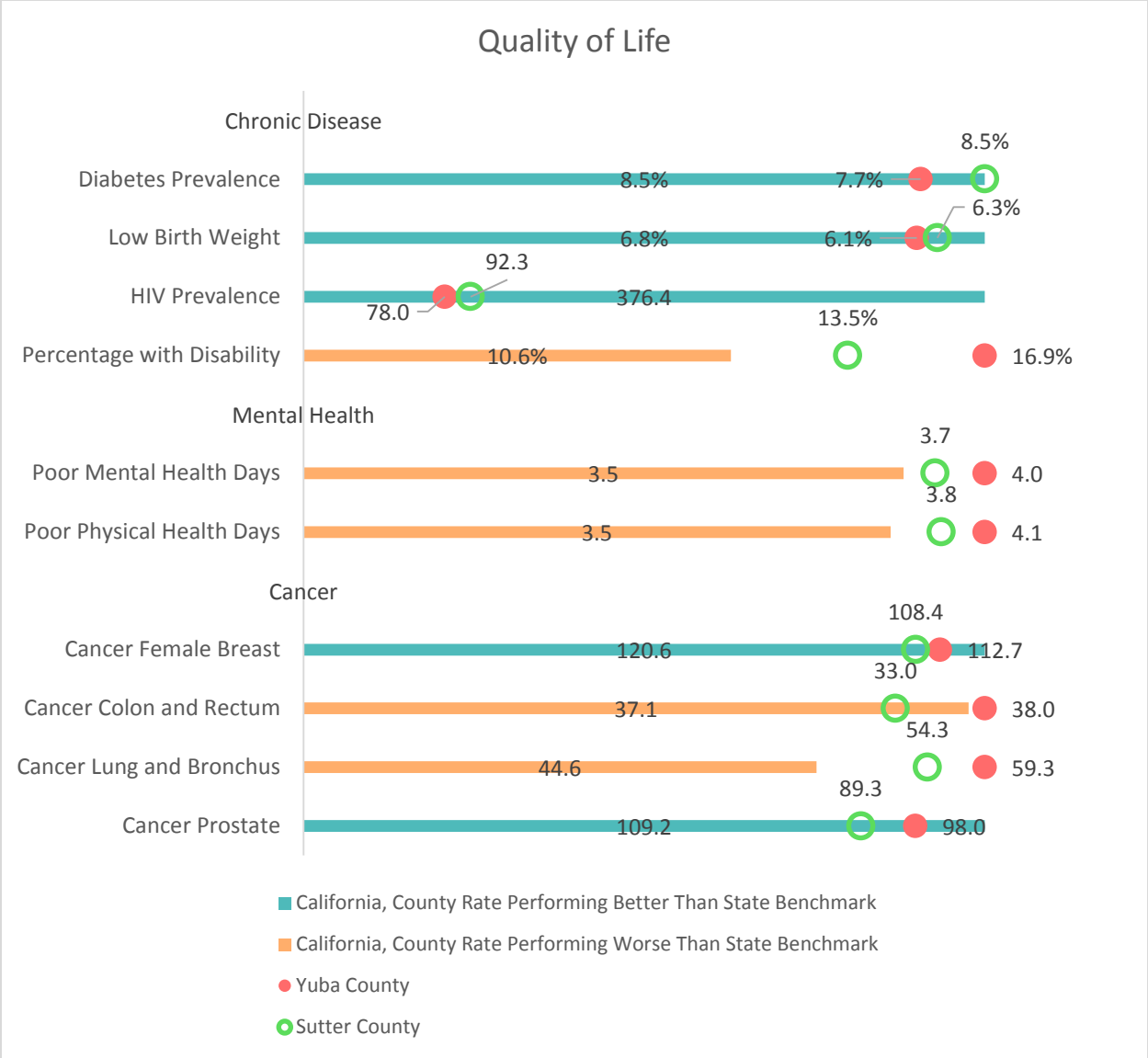
Figure 8: Quality of life indicators

Health Behaviors

Table 7: Health Behavior Indicators Compared to State Benchmarks

Indicators	Description	Yuba	Sutter	California
Excessive Drinking	Percentage of adults reporting binge or heavy drinking	18.7%	16.9%	17.8%
Drug Overdose Deaths	Age-adjusted deaths per 100,000	17.1	10.8	12.2
Adult Obesity	Percentage of adults reporting BMI of 30 or more	28.0%	29.7%	22.7%
Physical Inactivity	Percentage age 20 and older with no reported leisure-time physical activity	18.6%	20.7%	17.9%
Limited Access to Healthy Food	Percentage of population that is low income and does not live close to a grocery store	12.0%	10.8%	3.3%
mRFEI	Percentage of food outlets that are classified as 'healthy'	0.2%	0.1%	0.1%
Access to Exercise	Percentage of population with adequate access to locations for physical activity	50.3%	26.2%	89.6%
STI Chlamydia Rate	Number of newly diagnosed chlamydia cases per 100,000	365.0	327.6	487.5
Teen Birth Rate	Number of births per 1,000 females aged 15-19	37.9	25.9	24.1
Adult Smokers	Percentage of adults who are current smokers	14.9%	13.1%	11.0%
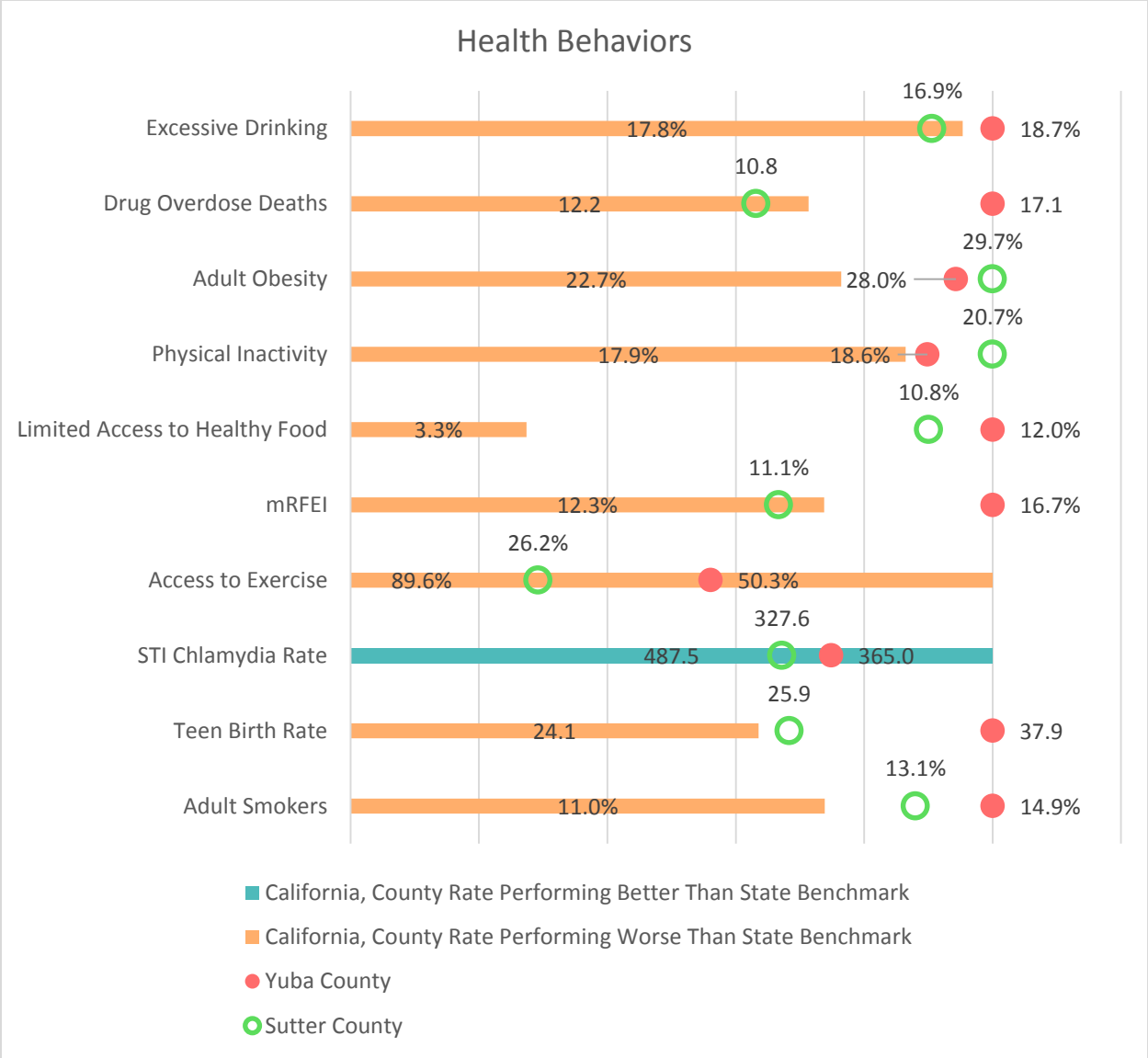
Figure 9: Health behavior indicators

Clinical Care

Table 8: Clinical Care Indicators Compared to State Benchmarks

Indicators	Description	Yuba	Sutter	California
Health Care Costs	Amount of price-adjusted Medicare reimbursements per enrollee	$8,273	$8,503	$9,100
HPSA Dental Health	Reports if a portion of the county falls within a Health Professional Shortage Area	Yes	No	
HPSA Mental Health	Reports if a portion of the county falls within a Health Professional Shortage Area	Yes	Yes	
HPSA Primary Care	Reports if a portion of the county falls within a Health Professional Shortage Area	Yes	No	
HPSA Medically Underserved Area	Reports if a portion of the county falls within a Medically Underserved Area	Yes	Yes	
Mammography Screening	Percentage of female Medicare enrollees aged 67-69 that receive mammography screening	54.7%	64.0%	59.7%
Dentists	Number per 100,000	34.5	74.5	82.3
Mental Health Providers	Number per 100,000	176.7	265.9	308.2
Psychiatry Providers	Number per 100,000	4.1	7.3	13.4
Specialty Care Providers	Number per 100,000	36.8	119.7	183.2
Primary Care Physicians	Number per 100,000	22.8	81.9	78.0
Preventable Hospital Stays	Number of hospital stays for ambulatory-care sensitive conditions per 1,000 Medicare enrollees	61.3	49.6	36.2
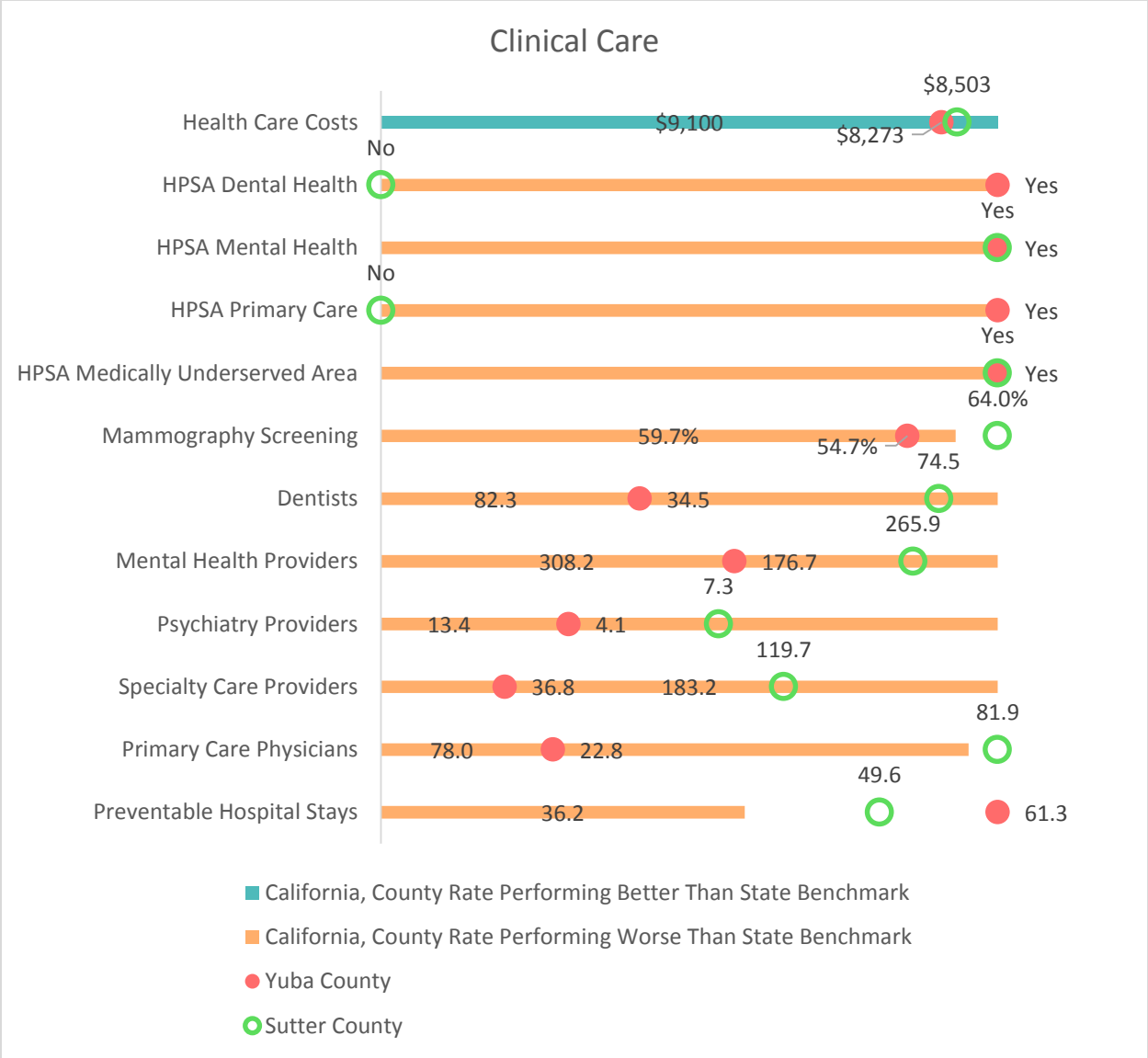
Figure 10: Clinical care indicators

Social and Economic Factors

Table 9: Social and Economic Factor Indicators Compared to State Benchmarks

Indicators	Description	Yuba	Sutter	California
Homicides	Deaths per 100,000	5.2	4.9	5.0
Violent Crimes	Reported violent crime offenses per 100,000	386.9	305.9	407.0
Motor Vehicle Crash Deaths	Deaths per 100,000	11.9	14.6	8.5
Some College	Percentage aged 25-44 with some post-secondary education	58.9%	56.0%	63.5%
High School Graduation	Percentage of ninth-grade cohort graduating high school in 4 years	77.4%	84.1%	82.3%
Unemployed	Percentage of population 16 and older unemployed but seeking work	8.5%	9.6%	5.4%
Children with Single Parents	Percentage of children living in a household headed by a single parent	33.0%	29.8%	31.8%
Social Associations	Membership associations per 100,000	4.4	5.8	5.8
Free and Reduced Lunch	Percentage of children in public schools eligible for free or reduced-price lunch	69.8%	62.1%	58.9%
Children in Poverty	Percentage of children under age 18 in poverty	23.8%	24.8%	19.9%
Median Household Income	Median household income	$46,054	$51,283	$67,715
Uninsured	Percentage of population under age 65 without health insurance	9.4%	11.0%	9.7%
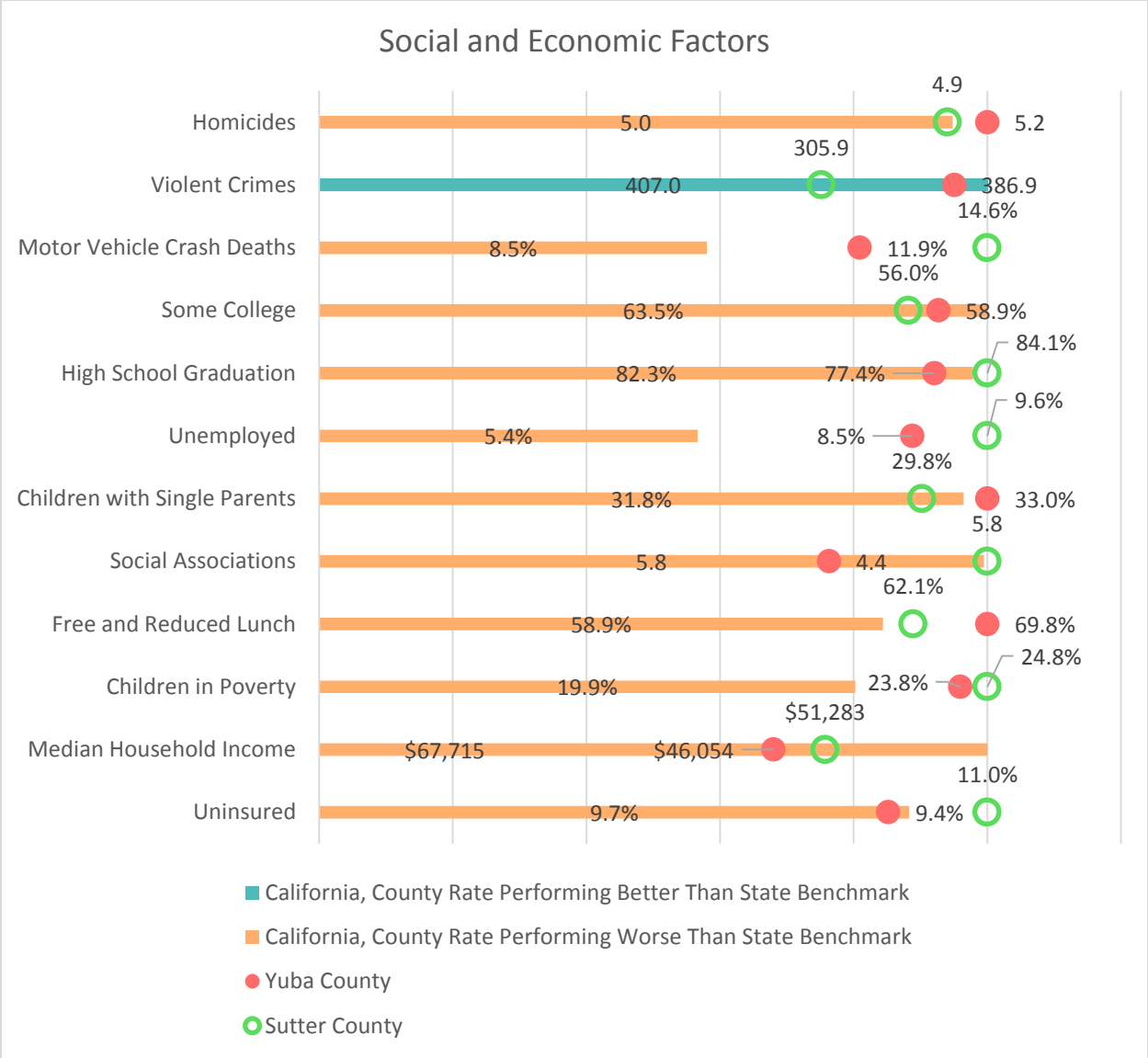
Figure 11: Social and economic factor indicators

Physical Environment

Table 10: Physical Environment Indicators Compared to State Benchmarks

Indicators	Description	Yuba	Sutter	California
Severe Housing Problems	Percentage of households with at least 1 of 4 housing problems: overcrowding, high housing costs, or lack of kitchen or plumbing facilities	24.6%	23.5%	27.9%
Housing Units With No Vehicle	Percentage of households with no vehicle available	6.9%	6.5%	7.6%
Public Transit Proximity	Percentage of population living in a Census block within a quarter of a mile to a fixed transit stop	57.2%	56.9%	50.0%
Pollution Burden	Percentage of population living in a Census tract with a CalEnviroscreen Pollution Burden score greater than the 50th percentile for the state	53.5%	47.8%	50.4%
Air Particulate Matter	Average daily density of fine particulate matter in micrograms per cubic meter (PM2.5)	8.0	7.1	8.0
Drinking Water Violations	Reports whether or not there was a health-related drinking water violation in a community within the county	Yes	No	
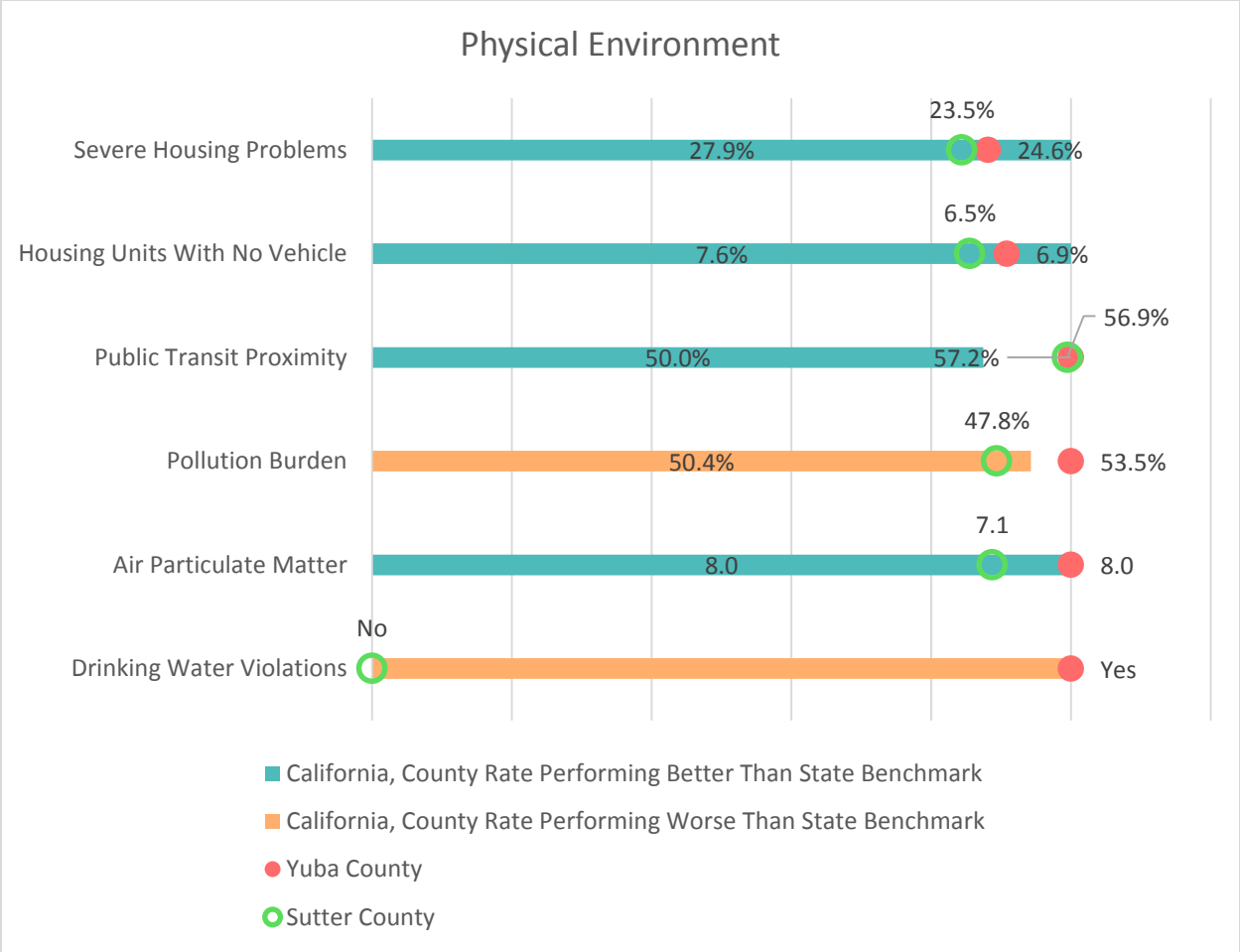
Figure 12: Physical environment indicators

CHNA Methods and Processes

Two related models were foundational in this CHNA. The first is a conceptual model that expresses the theoretical understanding of community health used in the analysis. This understanding is important because it provides the framework underpinning the collection of primary and secondary data. It is the tool used to ensure that the results are based on a rigorous understanding of those factors that influence the health of a community. The second model is a process model that describes the various stages of the analysis. It is the tool that ensures that the resulting analysis is based on a tight integration of community voice and secondary data and that the analysis meets federal regulations for conducting hospital CHNAs.

Conceptual Model

The conceptual model used in this needs assessment is shown in Figure 13. This model organizes populations' individual health-related characteristics in terms of how they relate to up- or downstream health and health-disparities factors. In this model, health outcomes (quality and length of life) are understood to result from the influence of health factors describing interrelated individual, environmental, and community characteristics, which in turn are influenced by underlying policies and programs.

This model was used to guide the selection of secondary indicators in this analysis as well as to express in general how these upstream health factors lead to the downstream health outcomes. It also suggests that poor health outcomes within the service area can be improved through policies and programs that address the health factors contributing to them. This conceptual model is a slightly modified version of the County Health Rankings Model used by the Robert Wood Johnson Foundation. It was primarily altered by adding a "Demographics" category to the "Social and Economic Factors" in recognition of the influence of demographic characteristics on health outcomes.

To generate the list of secondary indicators used in the assessment, each conceptual model category was reviewed to identify potential indicators that could be used to fully represent the category. The results of this discussion were then used to guide secondary data collection.
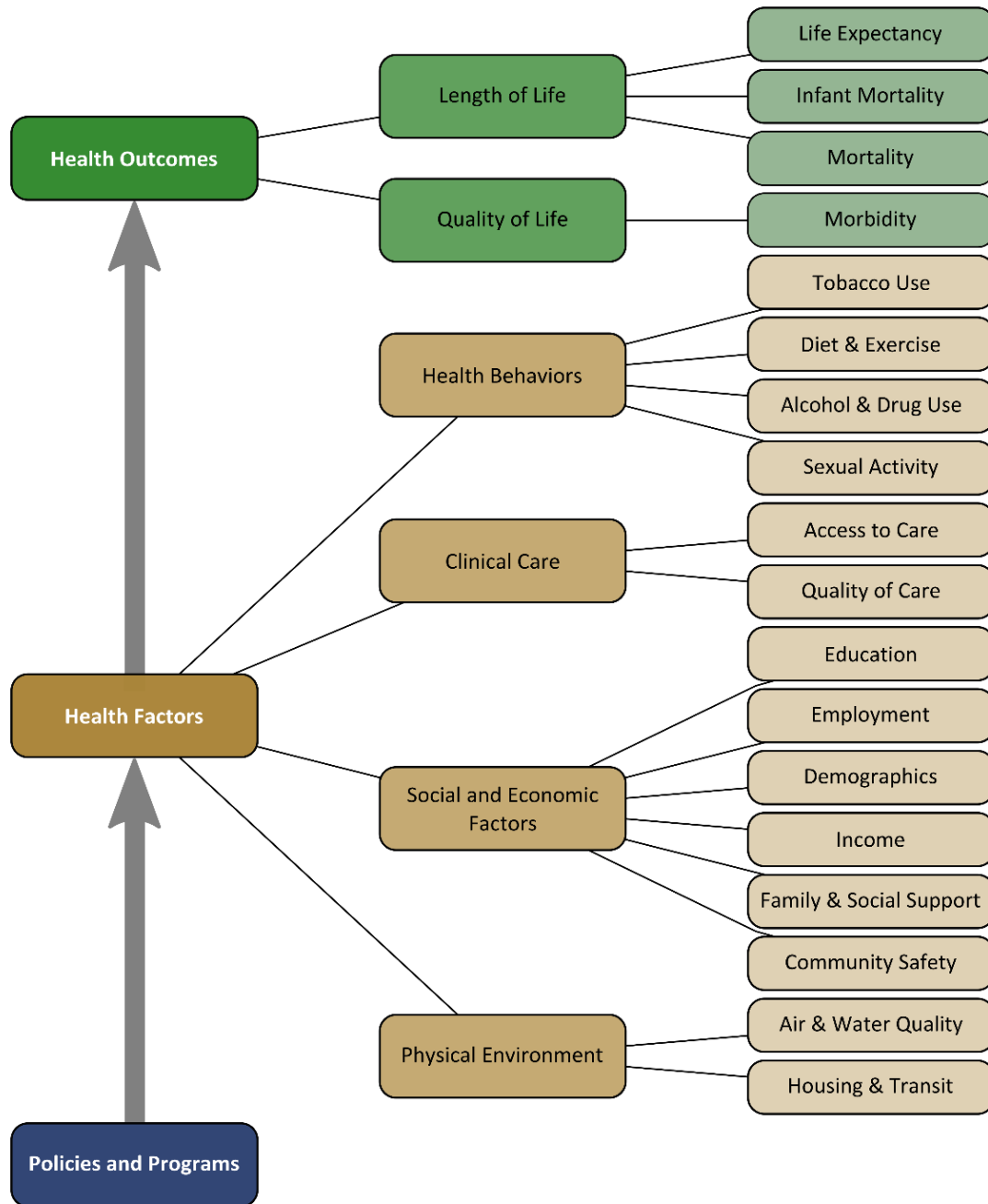
Figure 13: Community Health Assessment Conceptual Model as modified from the County Health Rankings Model, Robert Wood Johnson Foundation, and University of Wisconsin, 2015

Process Model

Figure 14 outlines the data collection and analysis stages of the CHNA process. The project began by confirming the HSA for RMH and SSHNV for which the CHNA would be conducted. Primary data collection included both key informant and focus-group interviews with community health experts and residents. Initial key informant interviews were used to identify Communities of Concern which are areas or population subgroups within the county experiencing health disparities.
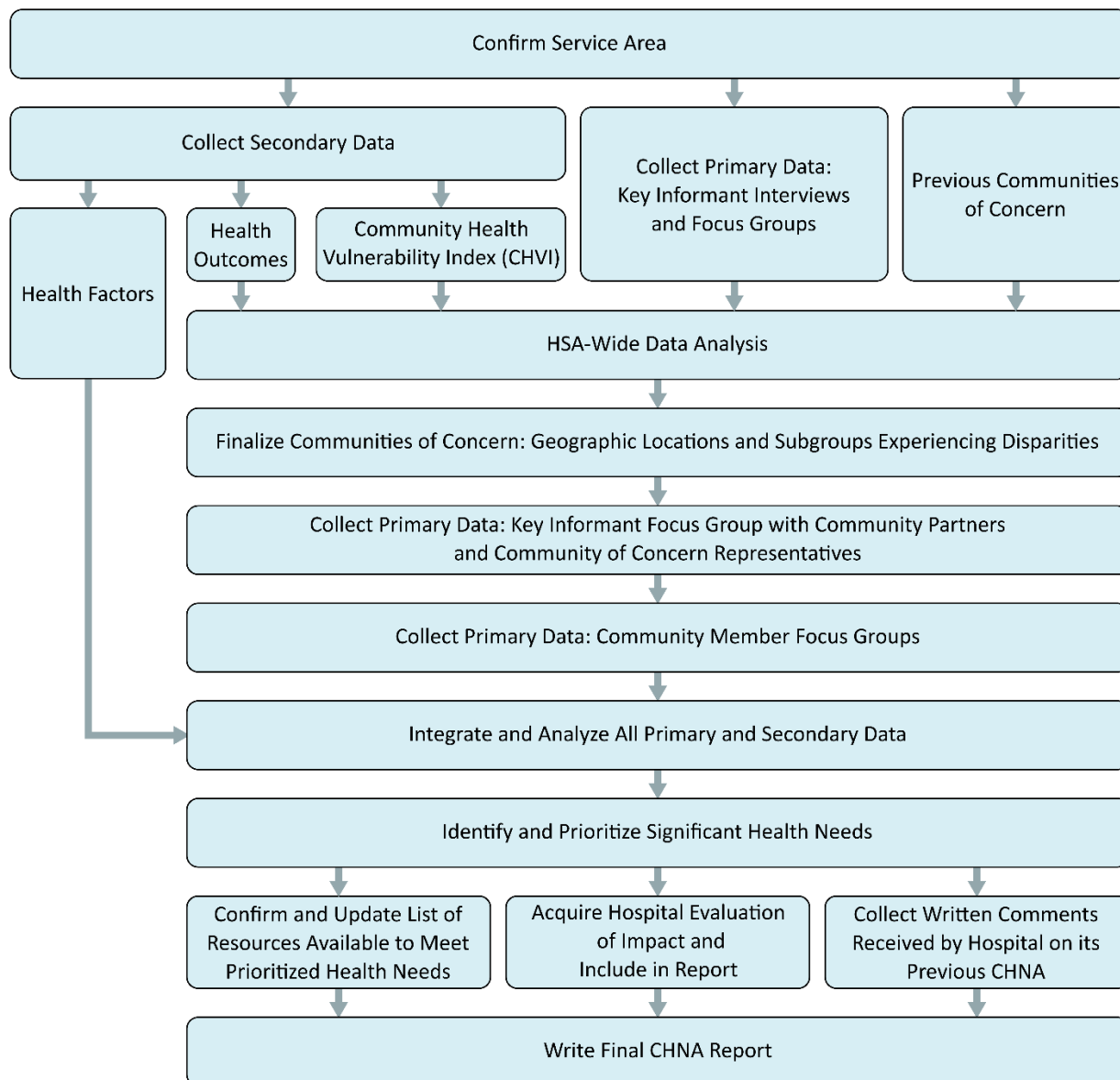
Figure 14: CHNA process model for RMH and SSHNV

Overall primary and secondary data were integrated to identify significant health needs for the HSA. Significant health needs were then prioritized based on analysis of the primary data. Finally, information was collected regarding the resources available within the community to meet the identified health needs. An evaluation of the impact of the hospital's prior efforts was obtained from hospital representatives and written comments on the previous CHNA were gathered and included in the report.

Greater detail on the collection and processing of the secondary and primary data is given in the next two sections. This is followed by a more detailed description of the methodology utilized during the main analytical stages of the process.

Primary Data Collection and Processing

Primary Data Collection

Input from the community served was collected through two main mechanisms. First, key Informant interviews were conducted with community health experts and area service providers (i.e., members of social-service nonprofit organizations and related healthcare organizations). These interviews occurred in both one-on-one and in group interview settings. Second, focus groups were conducted with community residents that were identified as populations experiencing disparities.

All participants were given an informed consent form prior to their participation, which provided information about the project, asked for permission to record the interview, and listed the potential benefits and risks for involvement in the interview. All interview data were collected through note taking and, in some instances, recording.

Key Informant Results

Primary data collection with key informants included two phases. First, phase one began by interviewing area-wide service providers with knowledge of the service area, including input from the designated Public Health Department. Data from these area-wide informants, coupled with socio-demographic data, was used to identify additional key informants for the assessment that were included in phase two.

As a part of the interview process, all key informants were asked to identify vulnerable populations. The interviewer asked each participant to verbally explain what vulnerable populations existed in the county. As needed for a visual aid, key informants were provided a map of the HSA to directly point to the geographic locations of these vulnerable communities. Additional key informant interviews were focused on the geographic locations and/or subgroups identified in the earlier phase.

Table 11 contains a listing of community health experts, or key informants, that contributed input to the CHNA. The table describes the name of the represented organization, the number of participants and area of expertise, the populations served by the organization, and the date of the interview.

Table 11: Key Informant List

Organization	# Participants	Area of Expertise	Populations Served	Date
Yuba County Public Health Division	1	Public Health: Health Administrator	Residents of Yuba County	3/7/19
Sutter County Dept of Public Health	2	Public Health: Branch Manager, Epidemiologist	Residents of Sutter County	3/7/19
Sutter County Dept of Public Health	1	Public Health: Public Health Officer	Residents of Sutter County	3/13/19
Sutter Co Dept of Public Health	3	Public Health: Nursing, Health Education, Health Programs	Residents of Sutter County	3/14/19

Organization	# Participants	Area of Expertise	Populations Served	Date
Adventist Health and Rideout	12	Community Service Providers	Low income, at risk residents of Yuba and Sutter Counties	3/14/19
Peach Tree Health	1	Healthcare Provider	Low income, at risk residents of Yuba and Sutter Counties	3/14/19
Adventist Health and Rideout	8	Healthcare Provider	Residents of Yuba and Sutter Counties	3/14/19
Ampla Health	1	Healthcare Provider	Low income, migrant workers in Yuba and Sutter Counties	3/18/19
First 5 Yuba County	1	Community Service Provider	Low income, at risk children and families in Marysville, Olivehurst, Linda, Wheatland and Beale Air Force Base	3/19/19
Sutter Kids (First 5 of Sutter County)	1	Community Service Provider	Low income, at risk children and families in Sutter County	3/20/19
Sutter County Dept of Public Health	2	Public Health: Mental and Behavioral Health Services	Low income, at risk, Medi-Cal residents of Yuba and Sutter Counties	3/28/19
Live Oak Middle School	1	Education	Low income, at risk children and families in Live Oak	4/3/19
Harmony Health	1	Healthcare Provider	Low income, at risk, minority residents in Linda and Yuba City	4/5/19

Key Informant Interview Guide

The following questions served as the interview guides for key informant interviews.

2019 CHNA Group / Key Informant Interview Protocol

1. Tell me about your current role and the organization you work for?
2. How would you define the communities you serve and live in?
3. For you, what does a healthy environment look like?
4. In light of the picture of the healthy community you just described, what are the biggest health needs in the community?
5. What specific geographic locations struggle with health issues the most?
6. What specific groups of community members experience health issues the most?
7. What historical/societal influences and emerging trends have occurred in the last 3 to 5 years concerning the health needs of the community you serve?
8. What are the challenges or barriers to being healthy for the community?
9. What solutions will address the health needs and or challenges mentioned?

10. Based on what we have discussed so far, what are currently the most important or urgent top 3 health issues or challenges to address in order to improve the health of the community?
11. What are resources that exist in the community that help your community live healthy lives?
12. Is there anything else you would like to share with our team about the health of the community?

Focus Group Results

Focus group interviews were conducted with community members living in geographic areas of the service area identified as locations or populations experiencing a disparate amount of poor socioeconomic conditions and poor health outcomes. Recruitment consisted of referrals from designated service providers representing vulnerable populations, as well as direct outreach to special population groups.

Table 12 contains a listing of focus groups that contributed input to the CHNA. The table describes the location of the focus group, the date it occurred, the total number of participants, and demographic information for focus group members.

Table 12: Focus Group List

Location	Date	# Participants	Demographic Information
Yuba City Senior Center	4/10/19	11	Seniors in Yuba and Sutter Counites
Life Building Center	4/10/19	15	People experiencing homelessness in Yuba and Sutter Counites
Hmong Outreach Center	4/17/19	13	Hmong community members from Olivehurst and Marysville
Latino Outreach Center	4/17/19	14	Latino residents from Yuba and Sutter Counties

Focus Group Interview Guide
2019 CHNA Focus Group Interview Protocol
1. Where in the county (HSA) do you live?
2. What are the biggest health needs in the community that you live?
3. What are the challenges (barriers) to being healthy for the community you live in?
4. What solutions do you think are needed to address the health needs and or challenges mentioned previously?
5. PRIORITY: Based on what we have discussed so far, what are currently the most important or urgent top 3 health issues or challenges to address in order to improve the health of the community you live in?
6. What resources exist in your community to help people live healthy lives?
7. OPEN: Is there anything else you would like to share with our team about the health of the community?

Primary Data Processing

Data were analyzed using NVivo 10 qualitative software. As needed, key informants were also asked to write data directly onto an HSA map for identification of vulnerable populations in the service area. Content analysis included thematic coding to potential health need categories, the identification of special populations experiencing health issues, and the identification of resources. In some instances,

data were coded in accordance to the interview question guide. Results were aggregated to inform the determination of prioritized significant health needs.

Secondary Data Collection and Processing

The secondary data used in the analysis can be thought of as falling into four categories. The first three are associated with the various stages outlined in the process model. These include 1) health outcome indicators, 2) Community Health Vulnerability Index (CHVI) data, and 3) health factor and health outcome indicators used to identify significant health needs. The fourth category of indicators is used to help describe the socioeconomic and demographic characteristics in the service area.

Mortality data at the ZIP Code level from the California Department of Public Health (CDPH) was used to represent health outcomes. U.S. Census Bureau data collected at the tract level was used to create the CHVI. Countywide indicators representing the concepts identified in the conceptual model and collected from multiple data sources were used in the identification of significant health needs. In the fourth category, U.S. Census Bureau data were collected at the state, county, and ZIP Code Tabulation Areas (ZCTA) levels and used to describe general socioeconomic and demographic characteristics in the area. This section details the sources and processing steps applied to the CDPH health outcome data; the U.S. Census Bureau data used to create the CHVI; the countywide indicators used to identify significant health needs; and the sources for the socioeconomic and demographic variables obtained from the U.S. Census Bureau.

CDPH Health Outcome Data

Mortality and birth-related data for each ZIP Code in the service area, as well as for the counties in which it was located, were collected from the California Department of Public Health (CDPH). The specific indicators used are listed in Table 13. To increase the stability of calculated rates for CDPH data, each of these indicators were collected for the years from 2012 to 2016. The specific processing steps used to derive these rates are described below.

Table 13: Mortality and Birth-Related Indicators Used in the CHNA

Indicator	ICD10 Codes
Heart Disease Mortality	I00-I09, I11, I13, I20-I51
Malignant Neoplasms (Cancer) Mortality	C00-C97
Cerebrovascular Disease (Stroke) Mortality	I60-I69
Chronic Lower Respiratory Disease (CLD) Mortality	J40-J47
Alzheimer's Disease Mortality	G30
Unintentional Injuries (Accidents) Mortality	V01-X59, Y85-Y86
Diabetes Mellitus Mortality	E10-E14
Influenza and Pneumonia Mortality	J09-J18
Chronic Liver Disease and Cirrhosis Mortality	K70, K73, K74
Essential Hypertension and Hypertensive Renal Disease Mortality	I10, I13, I15
Intentional Self-Harm (Suicide) Mortality	U03, X60-X84, Y87.0
Nephritis, Nephrotic Syndrome, and Nephrosis (Kidney disease) Mortality	N00-N07, N17-N19, N25-N27
Total Births	
Deaths of Those Under 1 Year	

ZIP Code Definitions

All CDPH indicators used at this stage of the analysis are reported by patient mailing ZIP Codes. ZIP Codes are defined by the U.S. Postal Service as a single location (such as a PO Box), or a set of roads along which addresses are located. The roads that comprise such a ZIP Code may not form contiguous areas and do not match the areas used by the U.S. Census Bureau, which is the main source of population and demographic information in the United States. Instead of measuring the population along a collection of roads, the census reports population figures for distinct, largely contiguous areas. To support the analysis of ZIP Code data, the U.S. Census Bureau created ZIP Code Tabulation Areas (ZCTAs). ZCTAs are created by identifying the dominant ZIP Code for addresses in a given census block (the smallest unit of census data available), and then grouping blocks with the same dominant ZIP Code into a corresponding ZCTA. The creation of ZCTAs allows us to identify population figures that, in combination with the health outcome data reported at the ZIP Code level, make it possible to calculate rates for each ZCTA. However, the difference in the definition between mailing ZIP Codes and ZCTAs has two important implications for analyses of ZIP Code level data.

First, ZCTAs are approximate representations of ZIP Codes rather than exact matches. While this is not ideal, it is nevertheless the nature of the data being analyzed. Second, not all ZIP Codes have corresponding ZCTAs. Some PO Box ZIP Codes or other unique ZIP Codes (such as a ZIP Code assigned to a single facility) may not have enough addressees residing in a given census block to ever result in the creation of a corresponding ZCTA. But residents whose mailing addresses are associated with these ZIP Codes will still show up in reported health outcome data. This means that rates cannot be calculated for these ZIP Codes individually because there are no matching ZCTA population figures.

To incorporate these patients into the analysis, the point location (latitude and longitude) of all ZIP Codes in California[11] were compared to ZCTA boundaries.[12] These unique ZIP Codes were then assigned to either the ZCTA in which they fell or, in the case of rural areas that are not completely covered by ZCTAs, the ZCTA closest to them. The CDPH information associated with these PO Boxes or unique ZIP Codes were then added to the ZCTAs to which they were assigned.

For example, 95992 is a PO Box located in Yuba City, California. ZIP Code 95992 is not represented by a ZCTA, but it could have reported patient data. Through the process identified above, it was found that 95992 is located within the 95991 ZCTA. Data for both ZIP Codes 95992 and 95991 were therefore assigned to ZCTA 95991 and used to calculate rates. All ZIP Code level health outcome variables given in this report are therefore reporting approximate rates for ZCTAs, but for the sake of familiarity of terms they are elsewhere presented as ZIP Code rates.

Rate Smoothing

All CDPH indicators were collected for all ZIP Codes in California. To protect privacy, CDPH masked the data for a given indicator if there were 10 or fewer cases reported in the ZIP Code. ZIP Codes with masked values were treated as having NA values reported, while ZIP Codes not included in a given year

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[11] Datasheer, L.L.C. (2018, July 16). *ZIP Code Database Free.* Retrieved from Zip-Codes.com: http://www.Zip-Codes.com

[12] U.S. Census Bureau. (2017). *TIGER/Line Shapefile, 2017, 2010 nation, U.S., 2010 Census 5-Digit ZIP Code Tabulation Area (ZCTA5) National.* Retrieved July 16, 2018, from http://www.census.gov/geo/maps-data/data/tiger-line.html

were assumed to have 0 cases for the associated indicator. As described above, patient records in ZIP Codes not represented by ZCTAs were added to those ZCTAs that they fell inside or were closest to.

When consolidating ZIP Codes into ZCTAs, if a PO Box ZIP Code with an NA value was combined with a non–PO Box ZIP Code with a reported value, then the NA value for the PO Box ZIP Code was converted to a 0. Thus, ZCTA values were recorded as NA only if all ZIP Codes contributing values to them had their values masked.

The next step in the analysis process was to calculate rates for each of these indicators. However, rather than calculating raw rates, Empirical Bayes smoothed rates (EBRs) were created for all indicators possible.[13] Smoothed rates are considered preferable to raw rates for two main reasons. First, the small population of many ZCTAs, particularly those in rural areas, meant that the rates calculated for these areas would be unstable. This problem is sometimes referred to as the small-number problem. Empirical Bayes smoothing seeks to address this issue by adjusting the calculated rate for areas with small populations so that they more closely resemble the mean rate for the entire study area. The amount of this adjustment is greater in areas with smaller populations, and less in areas with larger populations.

Because the EBR were created for all ZCTAs in the state, ZCTAs with small populations that may have unstable high rates had their rates "shrunk" to more closely match the overall indicator rate for ZCTAs in the entire state. This adjustment can be substantial for ZCTAs with very small populations. The difference between raw rates and EBRs in ZCTAs with very large populations, on the other hand, is negligible. In this way, the stable rates in large-population ZIP Codes are preserved, and the unstable rates in smaller-population ZIP Codes are shrunk to more closely match the state norm. While this may not entirely resolve the small-number problem in all cases, it does make the comparison of the resulting rates more appropriate. Because the rate for each ZCTA is adjusted to some degree by the EBR process, this also has a secondary benefit of better preserving the privacy of patients within the ZCTAs.

EBRs were calculated for each mortality indicator using the total population figure reported for ZCTAs in the 2014 American Community Survey 5-year Estimates table DP05. Data for 2014 were used because this represented the central year of the 2012–2016 range of years for which CDPH data were collected.

ZCTAs with NA values recorded were treated as having a value of 0 when calculating the overall expected rates for a state during the smoothing process but were kept as NA for the individual ZCTA. This meant that smoothed rates could be calculated for indicators, but if a given ZCTA had a value of NA for a given indicator, it retained that NA value after smoothing.

Empirical Bayes smoothing was attempted for every overall indicator but could not be calculated for some. In these cases, raw rates were used instead. These smoothed or raw mortality rates were then multiplied by 100,000 so that the final rates represented deaths per 100,000 people.

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[13] Anselin, L. (2003). *Rate Maps and Smoothing.* Retrieved January 14, 2018 from http://www.dpi.inpe.br/gilberto/tutorials/software/geoda/tutorials/w6_rates_slides.pdf

Community Health Vulnerability Index (CHVI)

The CHVI is a healthcare disparity index largely based on the Community Need Index (CNI) developed by Barsi and Roth.[14] The CHVI uses the same basic set of demographic indicators to address healthcare disparities as outlined in the CNI, but these indicators are aggregated in a different manner to create the CHVI. For this report, the nine indicators were obtained from the 2016 American Community Survey 5-year Estimate dataset at the census tract[15] level and are contained in Table 14.

Table 14: Indicators Used to Create the Community Health Vulnerability Index

Indicator	Description	Source Data Table	Variables Included
Minority	Percentage of the population that is Hispanic or reports at least one race that is not white	B0302	HD01_VD01, HD01_VD03
Limited English	Percentage of the population 5 years or older that speaks English less than "well"	B16004	HD01_DD01, HD01_VD07, HD01_VD08, HD01_VD12, HD01_VD13, HD01_VD17, HD01_VD18, HD01_VD22, HD01_VD23, HD01_VD29, HD01_VD30, HD01_VD34, HD01_VD35, HD01_VD39, HD01_VD40, HD01_VD44, HD01_VD45, HD01_VD51, HD01_VD52, HD01_VD56, HD01_VD57, HD01_VD61, HD01_VD62, HD01_VD66, HD01_VD67
Not a High School Graduate	Percentage of population over 25 that are not high school graduates	S1501	HC02_EST_VC17
Unemployed	Unemployment rate among the population 16 or older	S2301	HC04_EST_VC01
Families with Children in Poverty	Percentage of families with children that are in poverty	S1702	HC02_EST_VC02
Elderly Households in Poverty	Percentage of households with householders 65 years or older that are in poverty	B17017	HD01_VD01, HD01_VD08, HD01_VD14, HD01_VD19, HD01_VD25, HD01_VD30
Single-Female-Headed Households in Poverty	Percentage of single-female-headed households with children that are in poverty	S1702	HC02_EST_VC02

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[14] Barsi, E. L., & Roth, R. (2005). The Community Needs Index. *Health Progress, 86*(4), 32-38. Retrieved from https://www.chausa.org/docs/default-source/health-progress/the-community-need-index-pdf.pdf?sfvrsn=2

[15] Census tracts are data reporting regions created by the U.S. Census Bureau that roughly correspond to neighborhoods in urban areas but may be geographically much larger in rural locations.

Indicator	Description	Source Data Table	Variables Included
Renters	Percentage of the population in renter-occupied housing units	B25008	HD01_VD01, HD01_VD03
Uninsured	Percentage of population that is uninsured	S2701	HC05_EST_VC01

Each indicator was scaled using a min-max stretch so that the tract with the maximum value for a given indicator within the study area received a value of 1, the tract with the minimum value for that same indicator within the study area received a 0, and all other tracts received some value between 0 and 1 proportional to their reported values. All scaled indicators were then summed to form the final CHVI. Areas with higher CHVI values therefore represent locations with relatively higher concentrations of the target index populations and are likely experiencing greater healthcare disparities.

Significant Health Need Identification Dataset

The third set of secondary data used in the analysis were the health factor and health outcome indicators used to identify the significant health needs. The selection of these indicators was guided by the previously identified conceptual model. Table 15 lists these indicators, their sources, the years they were measured, and the health-related characteristics from the conceptual model they are primarily used to represent.

Table 15: Health Factor and Health Outcome Data Used in CHNA, Including Data Source and Time Period in Which the Data Were Collected

Conceptual Model Alignment			Indicator	Data Source	Time Period
Health outcomes	Length of life	Infant mortality	Infant Mortality Rate	CHR*	2010-2016
		Life expectancy	Life Expectancy at Birth	IHME**	2012-2016
		Mortality	Age-adjusted mortality	IHME	2012-2016
			Alzheimer's Disease mortality	CDPH***	2012-2016
			Child mortality	CHR	2013-2016
			Premature Age-Adjusted mortality	CHR	2014-2016
			Premature death (Years of Potential Life Lost)	CHR	2014-2016
			Cerebrovascular Disease (Stroke)	CDPH	2012-2016
			Chronic Lower Respiratory Disease	CDPH	2012-2016
			Diabetes Mellitus	CDPH	2012-2016
			Diseases of the Heart	CDPH	2012-2016
			Essential Hypertension & Hypertensive Renal Disease	CDPH	2012-2016
			Influenza and Pneumonia	CDPH	2012-2016
			Intentional Self Harm (Suicide)	CDPH	2012-2016
			Liver Disease	CDPH	2012-2016
			Malignant Neoplasms (Cancer)	CDPH	2012-2016
			Nephritis, Nephrotic Syndrome and Nephrosis (Kidney Disease)	CDPH	2012-2016
			Unintentional Injuries (Accidents)	CDPH	2012-2016

Conceptual Model Alignment			Indicator	Data Source	Time Period
Quality of life	Morbidity		Breast Cancer Incidence	California Cancer Registry	2010-2014
			Colorectal Cancer Incidence	California Cancer Registry	2010-2014
			Diabetes Prevalence	CHR	2014
			Disability	Census	2016
			HIV Prevalence Rate	CHR	2015
			Low Birth Weight	CHR	2010-2016
			Lung Cancer Incidence	California Cancer Registry	2010-2014
			Prostate Cancer Incidence	California Cancer Registry	2010-2014
			Poor Mental Health Days	CHR	2016
			Poor Physical Health Days	CHR	2016
Health factors	Health Behavior	Alcohol and drug use	Excessive Drinking	CHR	2016
			Drug Overdose Deaths	CDPH	2014-2016
		Diet and exercise	Adult Obesity	CHR	2014
			Physical Inactivity	CHR	2014
			Limited Access to Healthy Foods	CHR	2015
			Modified Retail Food Environment Index (mRFEI)	Census	2016
			Access to Exercise Opportunities	CHR	2010 population/ 2016 facilities
		Sexual activity	Sexually Transmitted Infections (Chlamydia Rate)	CHR	2015
			Teen Birth Rate	CHR	2010-2016
		Tobacco use	Adult Smoking	CHR	2016
	Clinical care	Access to care	Healthcare Costs	CHR	2015
			Health Professional Shortage Area - Dental	HRSA†	2018
			Health Professional Shortage Area - Mental Health	HRSA	2018
			Heath Professional Shortage Area - Primary Care	HRSA	2018
			Medically Underserved Areas	HRSA	2018
			Mammography Screening	CHR	2014
			Dentists	CHR	2016
			Mental Health Providers	CHR	2017
			Psychiatrists	HRSA	
			Specialty Care Providers	HRSA	
			Primary Care Physicians	CHR	2015

Conceptual Model Alignment			Indicator	Data Source	Time Period
Social & economic/ Demographic factors		Quality care	Preventable Hospital Stays (Ambulatory Care Sensitive Conditions)	CHR	2015
		Community safety	Homicide Rate	CHR	2010-2016
			Violent Crime Rate	CHR	2012-2014
			Motor Vehicle Crash Death Rate	CHR	2010-2016
		Education	Some College (Post-Secondary Education)	CHR	2012-2016
			High School Graduation	CHR	2014-2015
		Employment	Unemployment	CHR	2016
		Family and social support	Children in Single-Parent Households	CHR	2012-2016
			Social Associations	CHR	2015
		Income	Children Eligible for Free Lunch	CHR	2015-2016
			Children in Poverty	CHR	2016
			Median Household Income	CHR	2016
			Uninsured	CHR	2015
Physical Environment		Housing and transit	Severe Housing Problems	CHR	2010-2014
			Households with No Vehicle	Census	2012-2016
			Access to Public Transit	Census/ GTSF data	2010,2012-2016,2018
		Air and water quality	Pollution Burden Score	Cal-EnviroScreen	2017
			Air Pollution - Particulate Matter	CHR	2012
			Drinking Water Violations	CHR	2016

* County Health Rankings
** Institute for Health Metrics and Evaluation (IHME). United States Life Expectancy and Age-Specific Mortality Risk by County 1980-2014. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2017.
*** California Department of Public Health
† Health Resources and Services Administration

County Health Rankings Data

All indicators listed with County Health Rankings (CHR) as their source were obtained from the 2018 County Health Rankings[16] dataset. This was the most common source of data, with 38 associated indicators included in the analysis. Indicators were collected at both the county and state levels. County level indicators were used to represent the health factors and health outcomes in the service area. State-level indicators were collected to be used as benchmarks for comparison purposes. All variables included in the CHR dataset were obtained from other data providers. The original data providers for each CHR variable are given in Table 16.

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[16] Robert Wood Johnson Foundation. 2018. *County Health Rankings & Roadmaps*. Available online at: http://www.countyhealthrankings.org/. Accessed July 10, 2018.

Table 16: County Health Rankings Dataset, Including Indicators, the Time Period the Data Were Collected, and the Original Source of the Data

CHR Indicator	Time Period	Original Data Provider
Premature Death (Years of Potential Life Lost)	2014–2016	National Center for Health Statistics - Mortality Files
Diabetes Prevalence	2014	CDC Diabetes Interactive Atlas
HIV Prevalence Rate	2015	National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
Low Birth Weight	2010–2016	National Center for Health Statistics - Natality Files
Poor Mental Health Days	2016	Behavioral Risk Factor Surveillance System
Poor Physical Health Days	2016	Behavioral Risk Factor Surveillance System
Excessive Drinking	2016	Behavioral Risk Factor Surveillance System
Adult Obesity	2014	CDC Diabetes Interactive Atlas
Physical Inactivity	2014	CDC Diabetes Interactive Atlas
Limited Access to Healthy Foods	2015	USDA Food Environment Atlas
Access to Exercise Opportunities	2010 population/ 2016 facilities	Business Analyst, Delorme Map Data, ESRI, & U.S. Census Tiger Line Files
Sexually Transmitted Infections (Chlamydia Rate)	2015	National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
Teen Birth Rate	2010–2016	National Center for Health Statistics - Natality Files
Adult Smoking	2016	Behavioral Risk Factor Surveillance System
Healthcare Costs	2015	Dartmouth Atlas of Healthcare
Mammography Screening	2014	Dartmouth Atlas of Healthcare
Dentists	2016	Area Health Resource File/National Provider Identification File
Mental Health Providers	2017	CMS, National Provider Identification
Primary Care Physicians	2015	Area Health Resource File/American Medical Association
Preventable Hospital Stays (Ambulatory Care Sensitive Conditions)	2015	Dartmouth Atlas of Healthcare
Homicide Rate	2010–2016	CDC WONDER Mortality Data
Violent Crime Rate	2012–2014	Uniform Crime Reporting - FBI
Motor Vehicle Crash Death Rate	2010–2016	CDC WONDER Mortality Data
Some College (Postsecondary Education)	2012–2016	American Community Survey, 5-Year Estimates
High School Graduation	2014–2015	California Department of Education
Unemployment	2016	Bureau of Labor Statistics Local Area Unemployment Statistics
Children in Single-Parent Households	2012–2016	ACS 5-Year Estimates
Social Associations	2015	County Business Patterns

CHR Indicator	Time Period	Original Data Provider
Children Eligible for Free Lunch	2015–2016	National Center for Education Statistics
Children in Poverty	2016	U.S. Census Bureau Small Area Income and Poverty Estimates
Median Household Income	2016	U.S. Census Bureau Small Area Income and Poverty Estimates
Uninsured	2015	U.S. Census Bureau Small Area Health Insurance Estimates
Severe Housing Problems	2010–2014	HUD Comprehensive Housing Affordability Strategy (CHAS) Data
Air Pollution - Particulate Matter	2012	CDC's National Environmental Public Health Tracking Network
Drinking Water Violations	2016	Safe Drinking Water Information System

California Department of Public Health Data

The next most common sources of health outcome and health factor variables used for health need identification were the California Department of Public Health (CDPH). These included the same by-cause mortality rates as those described previously. But in this case, they were calculated at the county level to represent health conditions in the county and at the state level to be used as comparative benchmarks. CDPH County level rates were smoothed using the same process described previously. State-level rates were not smoothed.

Drug overdose death rates were also obtained from CDPH. This indicator reports age-adjusted drug-induced death rates for counties and the state from 2014 to 2016 as reported in the 2018 County Health Status Profiles.[17]

HRSA Data

Indicators related to the availability of healthcare providers were obtained from the Health Resources and Services Administration[18] (HRSA). These included Dental, Mental Health, and Primary Care Health Professional Shortage Areas and Medically Underserved Areas/Populations. They also included the number of specialty care providers and psychiatrists per 100,000 residents, derived from the county level Area Health Resource Files.

The health professional shortage area and medically underserved area data were not provided at the county level. Rather, they show all areas in the state that were designated as shortage areas. These areas could include a portion of a county or an entire county, or they could span multiple counties. To develop measures at the county level to match the other health factor and health outcome indicators used in health need identification, these shortage areas were compared to the boundaries of each county in the state. Counties that were partially or entirely covered by a shortage area were noted.

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[17] California Department of Public Health. (2018). *County Health Status Profiles 2018*. Retrieved October 23, 2018 from https://www.cdph.ca.gov/Programs/CHSI/Pages/County-Health-Status-Profiles.aspx

[18] Health Resources and Services Administration. (2018). *Data Downloads*. Retrieved June 19 and August 1, 2018 from https://data.hrsa.gov/data/download

The HRSA's Area Health Resource Files provide information on physicians and allied healthcare providers for U.S. counties. This information was used to determine the rate of specialty care providers and the rate of psychiatrists for each county and for the state. For the purposes of this analysis, a specialty care provider was defined as a physician who was not defined by the HRSA as a primary care provider. This was found by subtracting the total number of primary care physicians (both MDs and DOs, primary care, patient care, and nonfederal, excluding hospital residents and those 75 years of age or older) from the total number of physicians (both MDs and DOs, patient care, nonfederal) in 2015. This number was then divided by the 2015 total population given in the 2015 American Community Survey 5-year Estimates table B01003, and then multiplied by 100,000 to give the total number of specialty care physicians per 100,000 residents. The total of specialty care physicians in each county was summed to find the total specialty care physicians in the state, and state rates were calculated following the same approach as used for county rates. This same process was also used to calculate the number of psychiatrists per 100,000 for each county and the state using the number of total patient care, nonfederal psychiatrists from the Area Health Resource Files. It should be noted that psychiatrists are included in the list of specialty care physicians, so that indicator represents a subset of specialty care providers rather than a separate group.

California Cancer Registry

Data obtained from the California Cancer Registry[19] included age-adjusted incidence rates for colon and rectum, female breast, lung and bronchus, and prostate cancer sites for counties and the state. Reported rates were based on data from 2010 to 2014, and report cases per 100,000. For low-population counties, rates were calculated for a group of counties rather than for individual counties. That group rate was used in this report to represent incidence rates for each individual county in the group.

Census Data

Data from the U.S. Census Bureau were used to calculate three additional indicators: the percentage of households with no vehicle available, the percentage of the civilian noninstitutionalized population with some disability, and the Modified Retail Food Environment Index (mRFEI). The sources for the indicators used are given in Table 17.

Table 17: Detailed Description of Data Used to Calculate Percentage of Population with Disabilities, Households without a Vehicle, and the mRFEI

Indicator	Source Data Table	Variable	NAICS Code	Employee Size Category	Data Source
Percentage with Disability	S1810	HC03_EST_VC01			2016 American Community Survey 5-Year Estimates
Households with No Vehicle Available	DP04	HC03_VC85			
Large Grocery Stores	BP_2016_00A3	Number of Establishments	445110	10 or More Employees	

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[19] California Cancer Registry. (2018). *Age-Adjusted Invasive Cancer Incidence Rates in California*. Retrieved May 11, 2018 from https://www.cancer-rates.info/ca/

Indicator	Source Data Table	Variable	NAICS Code	Employee Size Category	Data Source
Fruit and Vegetable Markets	BP_2016_00A3	Number of Establishments	445230	All Establishments	2016 County Business Patterns
Warehouse Clubs	BP_2016_00A3	Number of Establishments	452910	All Establishments	
Small Grocery Stores	BP_2016_00A3	Number of Establishments	445110	1 to 4 Employees	
Limited-Service Restaurants	BP_2016_00A3	Number of Establishments	722513	All Establishments	
Convenience Stores	BP_2016_00A3	Number of Establishments	445120	All Establishments	

The mRFEI indicator reports the percentage of the total food outlets in a ZCTA that are considered healthy food outlets. The mRFEI indicator was calculated using a modification of the methods described by the National Center for Chronic Disease Prevention and Health Promotion[20] using data obtained from the U.S. Census Bureau's 2016 County Business Pattern datasets.

Healthy food retailers were defined based on North American Industrial Classification Codes (NAICS), and included large grocery stores, fruit and vegetable markets, and warehouse clubs.
Food retailers that were considered less healthy included small grocery stores, limited-service restaurants, and convenience stores.

To calculate the mRFEI, the total number of health food retailers was divided by the total number of healthy and less healthy food retailers, and the result was multiplied by 100 to calculate the final mRFEI value for each county and for the state.

CalEnviroScreen Data
CalEnviroScreen[21] is a dataset produced by CalEPA. It includes multiple indicators associated with various forms of pollution for census tracts within the state. These include multiple measures of air and water pollution, pesticides, toxic releases, traffic density, cleanup sites, groundwater threats, hazardous waste, solid waste, and impaired bodies of water. One indicator, pollution burden, combines all of these measures to generate an overall index of pollution for each tract. To generate a county level pollution-burden measure, the percentage of the population residing in census tracts with pollution-burden scores greater than or equal to the 50th percentile was calculated for each county as well as for the state.

Google Transit Feed Specification (GTFS) Data
The final indicator used to identify significant health needs was proximity to public transportation. This indicator reports the percentage of a county's population that lives in a census block located within a

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[20] National Center for Chronic Disease Prevention and Health Promotion. (2011). *Census Tract Level State Maps of the Modified Retail Food Environment Index (mRFEI).* Centers for Disease Control. Retrieved Jan 11, 2016, from http://ftp.cdc.gov/pub/Publications/dnpao/census-tract-level-state-maps-mrfei_TAG508.pdf

[21] CalEPA. 2018. CalEnviroscreen 3.0 Shapefile. Available online at: https://data.ca.gov/dataset/calenviroscreen-30. Last accessed: May 26, 2018.

quarter mile of a fixed transit stop. Census block data from 2010 (the most recent year available) was used to measure population.

An extensive search was conducted to identify stop locations for transportation agencies in the service area. Many transportation agencies publish their route and stop locations using the standard GTFS data format. Listings for agencies covering the service area were reviewed at TransitFeeds (https://transitfeeds.com) and Trillium (https://trilliumtransit.com/gtfs/our-work/). These were compared to the list of feeds used by Google Maps (https://www.google.com/landing/transit/cities/index.html#NorthAmerica) to try to maximize coverage.

Table 18 notes the agencies for which transit stops could be obtained. It should be noted that while every attempt was made to include as comprehensive a list of data sources as possible, there may be transit stops associated with agencies not included in this list in the county. Caution should therefore be used in interpreting this indicator.

Table 18: Transportation Agencies Used to Compile the Proximity to Public Transportation Indicator

County	Agency
Stanislaus	Turlock Transit, Ceres Area Transit, Stanislaus Regional Transit; Modesto Area Express (MAX)
San Joaquin	San Joaquin RTD, Lodi Grapeline, Escalon eTrans. Also includes Altamont Corridor Express.
Curry County	Curry Public Transit
Calaveras	Calaveras Transit

Descriptive Socioeconomic and Demographic Data

The final secondary dataset used in this analysis was comprised of multiple socioeconomic and demographic indicators collected at the ZCTA, county, and state level. These data were not used in an analytical context. Rather, they were used to provide a description of the overall population characteristics within the county. Table 19 lists each of these indicators as well as their sources.

Table 19: Descriptive Socioeconomic and Demographic Data Descriptions

Indicator	Description	Source Data Table	Variables Included
Population	Total population	DP05	HC01_VC03
Minority	Percentage of the population that is Hispanic or reports at least one race that is not white	B0302	HD01_VD01, HD01_VD03
Median Age	Median age of the population	DP05	HC01_VC23
Median Income	Median household income	S2503	HC01_EST_VC14
Poverty	Percentage of population below the poverty level	S1701	HC03_EST_VC01
Unemployed	Unemployment rate among the population 16 or older	S2301	HC04_EST_VC01

Indicator	Description	Source Data Table	Variables Included
Uninsured	Percentage of population without health insurance	S2701	HC05_EST_VC01
Not a High School Graduate	Percentage of population over 25 that are not high school graduates	S1501	HC02_EST_VC17
High Housing Costs	Percentage of the population for whom total housing costs exceed 30% of income	S2503	HC01_EST_VC33, HC01_EST_VC37, HC01_EST_VC41, HC01_EST_VC45, HC01_EST_VC49
Disability	Percentage of civilian noninstitutionalized population with a disability	S1810	HC03_EST_VC01

Detailed Analytical Methodology

The collected and processed primary and secondary data were integrated in three main analytical stages. First, secondary health outcome and health factor data were combined with area-wide key informant interviews help identify Communities of Concern. These Communities of Concern could potentially include geographic regions as well as specific sub-populations bearing disproportionate health burdens. This information was used to focus the remaining interview and focus-group collection efforts on those areas and subpopulations. Next, the resulting data was combined with secondary health need identification data to identify significant health needs within the service area. Finally, primary data was used to prioritize those identified significant health needs. The specific details for these analytical steps are given in the following three sections.

Community of Concern Identification
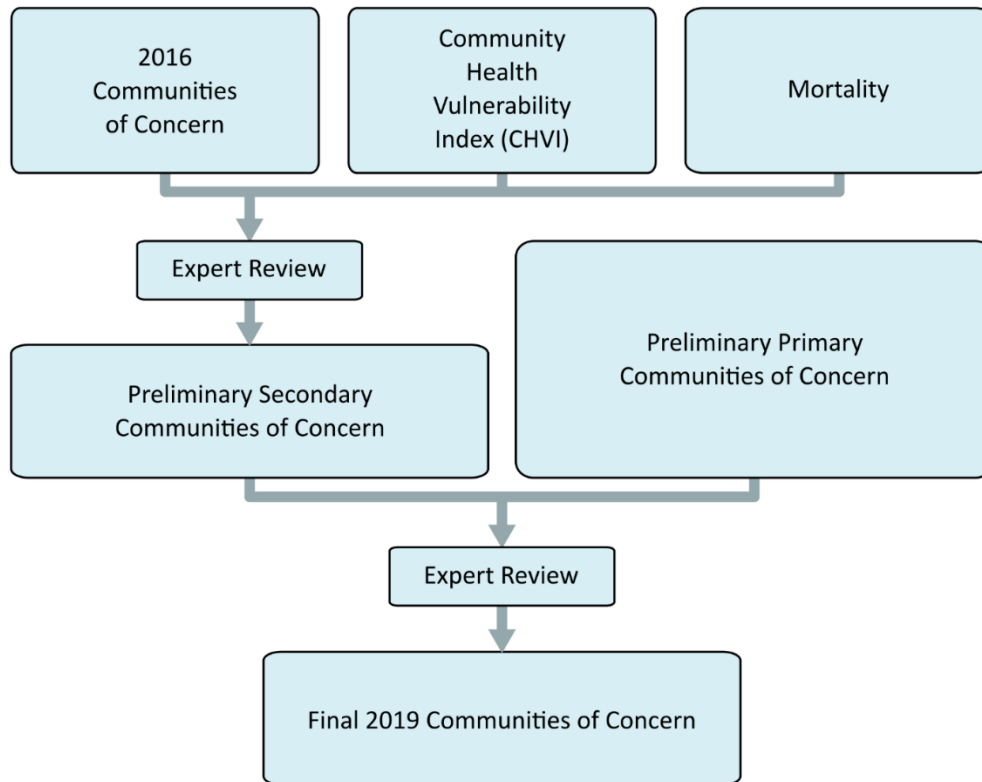
Figure 15: Process followed to identify Communities of Concern

As illustrated in Figure 15, the 2019 Communities of Concern were identified through a process that drew upon both primary and secondary data. Three main secondary data sources were used in this analysis: Communities of Concern identified in the 2016 CHNA; the census tract-level Community Health Vulnerability Index (CHVI); and the CDPH ZCTA-level mortality data.

An evaluation procedure was developed for each of these datasets and applied to each ZCTA within the HSA. The following secondary data selection criteria were used to identify preliminary Communities of Concern.

2016 Community of Concern

The ZCTA was included in the 2016 CHNA Community of Concern list for the HSA. This was done to allow greater continuity between CHNA rounds and reflects the work of the hospital systems oriented to serve these disadvantaged communities.

Community Health Vulnerability Index (CHVI)

The ZCTA intersected a census tract whose CHVI value fell within the top 20% of the HSA. These census tracts represent areas with consistently high concentrations of demographic subgroups identified in the research literature as being more likely to experience health-related disadvantages.

Mortality

The review of ZCTAs based on mortality data utilized the ZCTA-level CDPH health outcome indicators described previously. These indicators were heart disease, cancer, stroke, CLD, Alzheimer's disease, unintentional injuries, diabetes, influenza and pneumonia, chronic liver disease, hypertension, suicide, and kidney disease mortality rates per 100,000 people, and infant mortality rates per 1,000 live births. The number of times each ZCTA's rates for these indicators fell within the top 20% in the HSA was counted. Those ZCTAs whose counted values exceeded the 80th percentile for all of the ZCTAs in the HSA met the Community of Concern mortality selection criteria.

Integration of Secondary Criteria

Any ZCTA that met any of the three selection criteria (2016 Community of Concern, CHVI, and Mortality) was reviewed for inclusion as a 2019 Community of Concern, with greater weight given to those ZCTAs meeting two or more of the selection criteria. An additional round of expert review was applied to determine if any other ZCTAs not thus far indicated should be included based on some other unanticipated secondary data consideration. This list then became the final Preliminary Secondary Communities of Concern.

Preliminary Primary Communities of Concern

Preliminary primary Communities of Concern were identified by reviewing the geographic locations or population subgroups that were consistently identified by the area-wide primary data sources.

Integration of Preliminary Primary and Secondary Communities of Concern

Any ZCTA that was identified in either the Preliminary Primary or Secondary Community of Concern list was considered for inclusion as a 2019 Community of Concern. An additional round of expert review was then applied to determine if, based on any primary or secondary data consideration, any final adjustments should be made to this list. The resulting set of ZCTAs was then used as the final 2019 Communities of Concern.

Significant Health Need Identification

The general methods through which significant health needs (SHNs) were identified are shown in Figure 16 and described here in greater detail. The first step in this process was to identify a set of potential health needs (PHNs) from which significant health needs could be selected. This was done by reviewing the health needs identified during the 2016 CHNA among various hospitals throughout northern California and then supplementing this list based on a preliminary analysis of the primary qualitative data collected for the 2019 CHNA. This resulted in a list of 10 PHNs shown in Table 20.
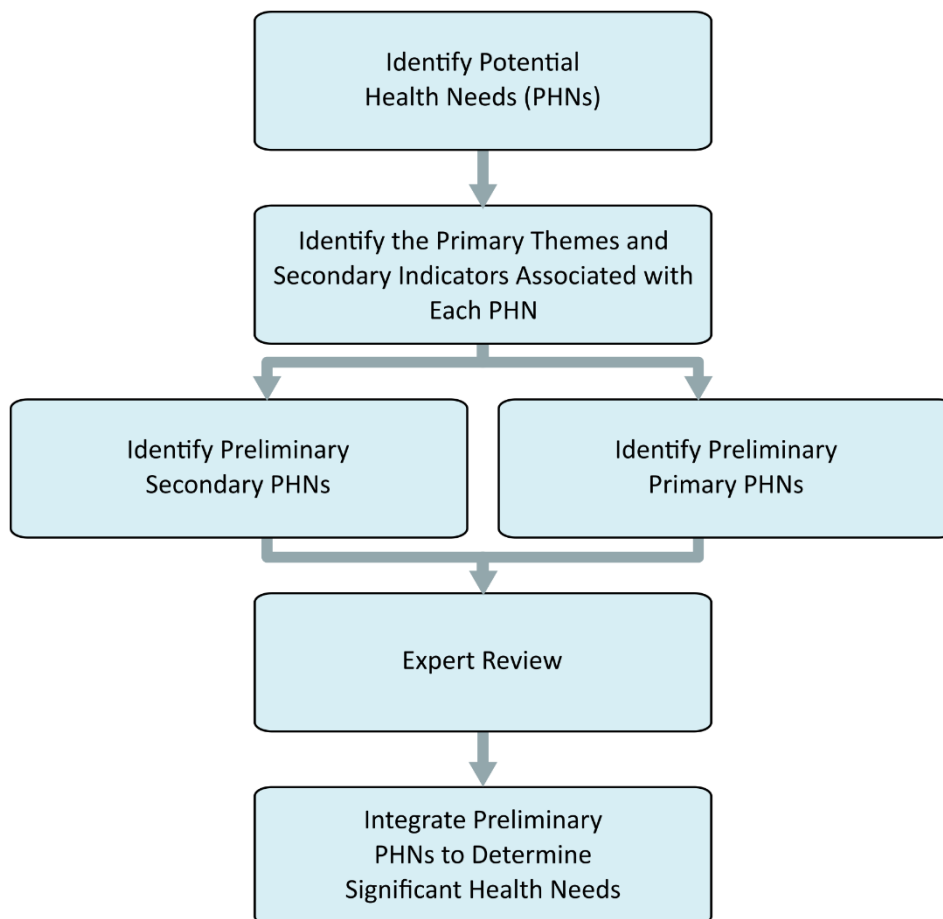
Figure 16: Process followed to identify Significant Health Needs

Table 20: Potential Health Needs

2019 Potential Health Needs (PHNs)	
PHN1	Access to Mental/Behavioral/Substance-Abuse Services
PHN2	Access to Quality Primary Care Health Services
PHN3	Active Living and Healthy Eating
PHN4	Safe and Violence-Free Environment
PHN5	Access to Dental Care and Preventive Services
PHN6	Pollution-Free Living Environment
PHN7	Access to Basic Needs such as Housing, Jobs, and Food
PHN8	Access and Functional Needs
PHN9	Access to Specialty and Extended Care
PHN10	Prevention of Disease and Injury through Knowledge, Action, and Access to Resources

The next step in the process was to identify primary themes and secondary indicators associated with each of these health needs as shown in Table 21. Primary theme associations were used to guide coding of the primary data sources to specific PHNs.

Table 21: Primary Theme and Secondary Indicators Used to Identify Significant Health Needs

Health Need Number	2019 CHI Potential Health Needs	2019 CHI Secondary Indicators	Primary Indicators
PHN1	Access to Mental/ Behavioral/ Substance-Abuse Services	• Liver Disease Mortality • Suicide Mortality • Poor Mental Health Days • Poor Physical Health Days • Drug Overdose Deaths • Excessive Drinking • Health Professional Shortage Area – Mental Health • Mental Health Providers • Psychiatrists • Social Associations	• Self-Injury • Mental Health and Coping Issues • Substance Abuse • Smoking • Stress • Mentally Ill and Homeless • PTSD • Access to Psychiatrist • Homelessness
PHN2	Access to Quality Primary Care Health Services	• Cancer Mortality • Chronic Lower Respiratory Disease Mortality • Diabetes Mortality • Heart Disease Mortality • Hypertension Mortality • Influenza and Pneumonia Mortality • Kidney Disease Mortality • Liver Disease Mortality • Stroke Mortality • Breast Cancer Incidence • Colorectal Cancer Incidence • Diabetes Prevalence • Low Birth Weight • Lung Cancer Incidence • Prostate Cancer Incidence • Healthcare Costs • Health Professional Shortage Area – Primary Care • Medically Underserved Areas • Mammography Screening • Primary Care Physicians • Preventable Hospital Stays • Percentage Uninsured	• Issue of Quality of Care • Access to Care • Health Insurance • Care for Cancer/Cancer Occurrence • Indicators in PQI: Diabetes, COPD, CRLD, HTN, HTD, Asthma, Pneumonia

Health Need Number	2019 CHI Potential Health Needs	2019 CHI Secondary Indicators	Primary Indicators
PHN3	Active Living and Healthy Eating	• Cancer Mortality • Diabetes Mortality • Heart Disease Mortality • Hypertension Mortality • Kidney Disease Mortality • Stroke Mortality • Breast Cancer Incidence • Colorectal Cancer Incidence • Diabetes Prevalence • Prostate Cancer Incidence • Limited Access to Healthy Foods • mRFEI • Access to Exercise Opportunities • Physical Inactivity • Adult Obesity	• Food Access/Insecurity • Community Gardens • Fresh Fruits and Veggies • Distance to Grocery Stores • Food Swamps • Chronic Disease Outcomes Related to Poor Eating • Diabetes, HTD, HTN, Stroke, Kidney issues, Cancer • Access to Parks • Places to be Active
PHN4	Safe and Violence-Free Environment	• Poor Mental Health Days • Homicide Rate • Motor Vehicle Crash Death Rate • Violent Crime Rate • Social Associations	• Crime Rates • Violence in The Community • Feeling Unsafe in The Community • Substance Abuse-Alcohol and Drugs • Access to Safe Parks • Pedestrian Safety • Safe Streets • Safe Places to Be Active
PHN5	Access to Dental Care and Preventive Services	• Dentists • Health Professional Shortage Area – Dental	• Any Issues Related to Dental Health • Access to Dental Care
PHN6	Pollution-Free Living Environment	• Cancer Mortality • Chronic Lower Respiratory Disease Mortality • Breast Cancer Incidence • Colorectal Cancer Incidence • Lung Cancer Incidence • Prostate Cancer Incidence • Adult Smoking • Air Pollution – Particulate Matter • Drinking Water Violations • Pollution Burden	• Smoking • Unhealthy Air, Water, Housing • Health Issues: Asthma, COPD, CLRD, Lung Cancer

Health Need Number	2019 CHI Potential Health Needs	2019 CHI Secondary Indicators	Primary Indicators
PHN7	Access to Basic Needs Such as Housing, Jobs, and Food	• Premature Age-Adjusted Mortality • Premature Death (Years of Potential Life Lost) • Low Birth Weight • Medically Underserved Areas • Healthcare Costs • High School Graduation • Some College (Postsecondary Education) • Unemployment • Children in Single-Parent Household • Social Associations • Children Eligible for Free or Reduced Lunch • Children in Poverty • Median Household Income • Uninsured • Severe Housing Problems • Households with No Vehicle • mRFEI • Limited Access to Healthy Food	• Employment and Unemployment • Poverty • Housing Issues • Homelessness • Education Access • Community Quality of Life • Housing Availability • Housing Affordability
PHN8	Access and Functional Needs	• Access to Public Transportation • Households with no Vehicle • Percentage of Population with a Disability	• Physical Access Issues • Cost of Transportation • Ease of Transportation Access • No Car • Disability
PHN9	Access to Specialty and Extended Care	• Alzheimer's Mortality • Cancer Mortality • Chronic Lower Respiratory Disease Mortality • Diabetes Mortality • Heart Disease Mortality • Hypertension Mortality • Kidney Disease Mortality • Liver Disease Mortality • Stroke Mortality • Diabetes Prevalence • Lung Cancer Incidence • Psychiatrists • Specialty Care Providers • Preventable Hospital Stays	• Seeing a Specialist for Health Conditions • Diabetes-Related Specialty Care • Specialty Care for HTD, HTN, Stroke, Kidney Diseases

Health Need Number	2019 CHI Potential Health Needs	2019 CHI Secondary Indicators	Primary Indicators
PHN10	Prevention of Disease and Injury through Knowledge, Action, and Access to Resources	• Alzheimer's Mortality • Chronic Lower Respiratory Disease Mortality • Diabetes Mortality • Heart Disease Mortality • Hypertension Mortality • Influenza and Pneumonia Mortality • Kidney Disease Mortality • Liver Disease Mortality • Stroke Mortality • Suicide Mortality • Unintentional Injury Mortality • Diabetes Prevalence • HIV Prevalence Rate • Low Birth Weight • Drug Overdose Deaths • Excessive Drinking • Adult Obesity • Physical Inactivity • Sexually Transmitted Infections • Teen Birth Rate • Adult Smoking • Motor Vehicle Crash Death Rate	• Anything Related to Helping Prevent a Preventable Disease or Injury • Unintentional Injury • Smoking and Alcohol/Drug Abuse • Teen Pregnancy • HIV/STD • TB • Influenza and Pneumonia • Health Classes • Health Promotion Teams and Interventions • Need for Health Literacy

Next, values for the secondary health factor and health outcome indicators identified were compared to state benchmarks to determine if a secondary indicator performed poorly within the county. Some indicators were considered problematic if they exceeded the benchmark, others were considered problematic if they were below the benchmark, and the presence of certain other indicators within the county, such as health professional shortage areas, indicated issues. Table 22 lists each secondary indicator and describes the comparison made to the benchmark to determine if it was problematic.

Table 22: Benchmark Comparisons to Show Indicator Performance

Indicator	Benchmark Comparison Indicating Poor Performance
Infant Mortality	Higher
Child Mortality	Higher
Life Expectancy	Lower
Age-Adjusted Mortality	Higher
Premature Age-Adjusted Mortality	Higher
Years of Potential Life Lost	Higher
Stroke Mortality	Higher

Indicator	Benchmark Comparison Indicating Poor Performance
CLD Mortality	Higher
Diabetes Mortality	Higher
Heart Disease Mortality	Higher
Hypertension Mortality	Higher
Cancer Mortality	Higher
Liver Disease Mortality	Higher
Kidney Disease Mortality	Higher
Suicide Mortality	Higher
Unintentional Injury Mortality	Higher
Alzheimer's Mortality	Higher
Influenza and Pneumonia Mortality	Higher
Diabetes Prevalence	Higher
Low Birth Weight	Higher
HIV Prevalence	Higher
Percentage with Disability	Higher
Poor Mental Health Days	Higher
Poor Physical Health Days	Higher
Cancer Female Breast	Higher
Cancer Colon and Rectum	Higher
Cancer Lung and Bronchus	Higher
Cancer Prostate	Higher
Excessive Drinking	Higher
Drug Overdose Deaths	Higher
Adult Obesity	Higher
Physical Inactivity	Higher
Limited Access to Healthy Food	Higher
mRFEI	Lower
Access to Exercise	Lower
STI Chlamydia Rate	Higher
Teen Birth Rate	Higher
Adult Smokers	Higher
Health Care Costs	Higher
HPSA Dental Health	Present
HPSA Mental Health	Present
HPSA Primary Care	Present
HPSA Medically Underserved Area	Present
Mammography Screening	Lower
Dentists	Lower
Mental Health Providers	Lower
Psychiatry Providers	Lower

Indicator	Benchmark Comparison Indicating Poor Performance
Specialty Care Providers	Lower
Primary Care Physicians	Lower
Preventable Hospital Stays	Higher
Homicides	Higher
Violent Crimes	Higher
Motor Vehicle Crash Deaths	Higher
Some College	Lower
High School Graduation	Lower
Unemployed	Higher
Children with Single Parents	Higher
Social Associations	Lower
Free and Reduced Lunch	Higher
Children in Poverty	Higher
Median Household Income	Lower
Uninsured	Higher
Severe Housing Problems	Higher
Housing Units With No Vehicle	Higher
Public Transit Proximity	Lower
Pollution Burden	Higher
Air Particulate Matter	Higher
Drinking Water Violations	Present

Once these poorly performing quantitative indicators were identified, they were used to identify preliminary secondary significant health needs. This was done by calculating the percentage of all secondary indicators associated with a given PHN that were identified as performing poorly within the HSA. While all PHNs represented actual health needs within the HSA to a greater or lesser extent, a PHN was considered a preliminary secondary health need if the percentage of poorly performing indicators exceeded one of a number of established thresholds: any poorly performing associated secondary indicators; or at least 20%, 25%, 33%, 40%, 50%, 60%, 66%, 75%, or 80% of the associated indicators were found to perform poorly. These thresholds were chosen because they correspond to divisions of the indicators into fifths, quarters, thirds, or halves. A similar set of standards was used to identify the preliminary interview and focus-group health needs: any of the survey respondents mentioned a theme associated with a PHN, or if at least 20%, 25%, 33%, 40%, 50%, 60%, 66%, 75%, or 80% of the respondents mentioned an associated theme.

These sets of criteria (any mention, 20%, 25%, 33%, 40%, 50%, 60%, 66%, 75%, or 80%) were used because we could not anticipate which specific standard would be most meaningful within the context of the HSA. Having multiple objective decision criteria allows the process to be more easily described but still allows for enough flexibility to respond to evolving conditions in the HSA. To this end, a final round of expert reviews was used to compare the set selection criteria to find the level at which the criteria converged towards a final set of SHNs. Once the final criteria used to identify the SHN were

selected for the primary and secondary analyses, any PHN included in either preliminary health need list was included as a final significant health need for the county.

For this report, A PHN was selected as a significant health need if 66% of the associated quantitative indicators were identified as performing poorly or the need was identified by 66% or more of the primary sources as performing poorly.

Health Need Prioritization

Once identified for the area, the final set of SHNs was prioritized. To reflect the voice of the community, significant health need prioritization was based solely on primary data. Key informants and focus-group participants were asked to identify the three most significant health needs in their communities. These responses were associated with one or more of the potential health needs. This, along with the responses across the rest of the interviews and focus groups, was used to derive two measures for each significant health need.

First, the total percentage of all primary data sources that mentioned themes associated with a significant health need at any point was calculated. This number was taken to represent how broadly a given significant health need was recognized within the community. Next, the percentage of times a theme associated with a significant health was mentioned as one of the top three health needs in the community was calculated. Since primary data sources were asked to prioritize health needs in this question, this number was taken to represent the intensity of the need.

These two measures were next rescaled so that the SHN with the maximum value for each measure equaled one, the minimum equaled zero, and all other SHNs had values appropriately proportional to the maximum and minimum values. The rescaled values were then summed to create a combined SHN prioritization index. SHNs were ranked in descending order based on this index value so that the SHN with the highest value was identified as the highest-priority health need, the SHN with the second highest value was identified as the second-highest-priority health need, and so on.

Detailed List of Resources to Address Health Needs

Table 23: Detailed List of Resources Potentially Available to Address Significant Health Needs Identified in the CHNA

Name	ZIP Code	Website	Access to Mental/ Behavioral/ Substance Abuse Services	Access to Quality Primary Care Health Services	Active Living and Healthy Eating	Safe and Violence-Free Environment	Access to Basic Needs Such as Housing, Jobs, and Food	Access and Functional Needs	Access to Specialty and Extended Care	Prevention of Disease and Injury through Knowledge, Action, and Access to Resources
Ampla Health - Lindhurst	95961	http://www.amplahealth.org/contact-us-at-ampla-health.html	X	X					X	
Ampla Health - Colusa	95832	http://www.amplahealth.org/contact-us-at-ampla-health.html	X	X					X	
Rideout Health Group	95901	http://www.frhg.org/	X	X					X	
Habitat for Humanity – Yuba/Sutter	95901	http://www.yubasutterhabitat.org/								
Pathways Alcohol Treatment Program	95901	http://www.yspathways.net/contact/locations/	X							X
First 5 Yuba County	95901	http://www.first5yuba.org	X	X	X		X			X
Yuba County Health & Human Services, Public Health Clinic	95901	http://www.co.yuba.ca.us/departments/hhsd/public%20health/	X	X	X					X
Yuba County Tobacco Cessation	95901	http://www.co.yuba.ca.us/departments/hhsd/public%20health/tobacco.aspx								X
Yuba County Adult Services Division	95901	http://www.co.yuba.ca.us/departments/hhsd/aps/			X	X	X			X
Yuba County Children's Services	95901	http://www.co.yuba.ca.us/departments/hhsd/cws/	X		X	X				X
Yuba-Sutter Counties, Veteran Service Office	95901	http://www.co.yuba.ca.us/departments/hhsd/veterans/	X	X					X	X

Organization Information			Significant Health Need Potentially Met (X)							
Name	ZIP Code	Website	Access to Mental/ Behavioral/ Substance Abuse Services	Access to Quality Primary Care Health Services	Active Living and Healthy Eating	Safe and Violence-Free Environment	Access to Basic Needs Such as Housing, Jobs, and Food	Access and Functional Needs	Access to Specialty and Extended Care	Prevention of Disease and Injury through Knowledge, Action, and Access to Resources
Maternal Child and Adolescent Health	95901	http://www.co.yuba.ca.us/departments/hhsd/public%20health/MCAH.aspx							X	X
Peach Tree Clinic	95901	http://pickpeach.org/clinic-locations/peach-tree-linda/	X	X					X	
Children Health & Disability Prevention Program (CDPH)	95901	http://www.co.yuba.ca.us/departments/hhsd/public%20health/CHDP.aspx		X						
Yuba County WIC	95901	http://www.amplahealth.org/women-infants-and-children-wic-program.html			X		X			
Aegis Medical System	95901	http://www.aegistreatmentcenters.com	X							
California Tribal TANF	95901	http://cttp.net/about/office-locations/					X			X
Child Care Planning Council of Yuba & Sutter Counties	95901	http://www.childcareyubasutter.org/pages/contact.htm	X							X
Harmony Health Medical Clinic & Family Resource Center	95901	http://www.myharmonyhealth.org/Home.php		X					X	X
FREED Center for Independent Living (Transportation Voucher Program)	95901	http://www.freed.org/contact/	X					X		X
St. John's Episcopal Church	95901	http://www.saintjohnsepiscopal.org			X		X			
St. Joseph's Catholic Church	95901	http://www.stjoseph-marysville.org			X		X			
Yuba-Sutter Head Start	95901	http://www.ecenter.org					X			X

Organization Information			Significant Health Need Potentially Met (X)							
Name	ZIP Code	Website	Access to Mental/ Behavioral/ Substance Abuse Services	Access to Quality Primary Care Health Services	Active Living and Healthy Eating	Safe and Violence-Free Environment	Access to Basic Needs Such as Housing, Jobs, and Food	Access and Functional Needs	Access to Specialty and Extended Care	Prevention of Disease and Injury through Knowledge, Action, and Access to Resources
Twin City Rescue Mission	95901	http://tcmission.com					X			
A Woman's Friend	95901	http://www.awomansfriend.org/							X	X
Marysville Immediate Care Clinic	95901	http://pickpeach.org/clinic-locations/marysville-immediate-care/	X	X					X	
Yuba Sutter Transit	95901	http://www.yubasuttertransit.com						X		
Yuba College Clinic	95901	https://yc.yccd.edu/student/health-clinic		X						
Yuba County Family Resource Center	95901	http://sutter.networkofcare.org/mh/services/agency.aspx?pid=YubaCountyFamilyResourceCenter_161_2_0		X				X		X
Life Building Center – Homeless Hotline	95901	530-749-6811					X			
Child Development Center	95903	http://www.bealefss.com/child-development-center.html				X				X
Sutter County WIC	95953	https://www.co.sutter.ca.us/doc/government/depts/hs/ph/hs_wic			X		X			X
Live Oak Clinic	95953	http://pickpeach.org/clinic-locations/peach-tree-live-oak/	X	X					X	
Yuba County WIC	95961	http://www.amplahealth.org/women-infants-and-children-wic-program.html			X		X			X
Hmong Outreach Center	95961	530-749-2746	X				X			
Lindhurst Medical & Dental - Olivehurst Low Cost Clinic	95961	http://www.amplahealth.org/ampla-health-centers/lindhurst-medical-a-dental.html								

Organization Information			Significant Health Need Potentially Met (X)							
Name	ZIP Code	Website	Access to Mental/ Behavioral/ Substance Abuse Services	Access to Quality Primary Care Health Services	Active Living and Healthy Eating	Safe and Violence-Free Environment	Access to Basic Needs Such as Housing, Jobs, and Food	Access and Functional Needs	Access to Specialty and Extended Care	Prevention of Disease and Injury through Knowledge, Action, and Access to Resources
Pathways Alcohol Treatment Program	95991	http://www.yspathways.net	X				X			
Buddy's House	95991	http://www.buddyshouse.org	X				X			
Latino Outreach Center	95991	530-822-7200	X				X			
Hands of Hope	95991	http://www.ychandsofhope.org					X			
Planned Parenthood: Yuba City Health Center	95991	https://www.plannedparenthood.org/health-center/california/yuba-city/95991/yuba-city-health-center-2374-90130?utm_campaign=yuba-city-health-center&utm_medium=organic&utm_source=local-listing		X					X	X
Peach Tree Clinic	95991	http://pickpeach.org/clinic-locations/peach-tree-yuba-city/	X	X					X	
Peach Tree Pediatrics	95991	http://pickpeach.org/clinic-locations/peach-tree-yuba-city/	X	X					X	
Sutter Smiles Dental Van	95991	http://pickpeach.org/dental/sutter-smiles-dental-van/								
Women's Circle Nurse-Midwife Services Inc.	95991	http://www.yubasuttermidwife.com							X	X
Bi-County Mental Health	95991	https://www.co.sutter.ca.us/doc/government/depts/hs/mh/hs_mental_health	X							
Options for Change	95991	https://www.co.sutter.ca.us/doc/government/depts/hs/mh/sa/hs_substance_abuse	X							
Yuba-Sutter Gleaners Food	95991	http://www.ysgleaners.org			X		X			
Salvation Army	95991	http://www.salvationarmyusa.org	X		X	X	X			X

Organization Information			Significant Health Need Potentially Met (X)							
Name	ZIP Code	Website	Access to Mental/ Behavioral/ Substance Abuse Services	Access to Quality Primary Care Health Services	Active Living and Healthy Eating	Safe and Violence-Free Environment	Access to Basic Needs Such as Housing, Jobs, and Food	Access and Functional Needs	Access to Specialty and Extended Care	Prevention of Disease and Injury through Knowledge, Action, and Access to Resources
Yuba City Senior Center	95991	https://www.co.sutter.ca.us/doc/living/seniors/liv_seniors								X
Ampla Health - Richland	95991	http://www.amplahealth.org/contact-us-at-ampla-health.html	X	X					X	
Ampla Health	95991	http://www.amplahealth.org/contact-us-at-ampla-health.html	X	X					X	
Ampla Health - Yuba City Medical	95991	http://www.amplahealth.org/contact-us-at-ampla-health.html	X	X					X	
Sutter Surgical Hospital North Valley	95991	http//sutterhealth.org/sshnv/		X					X	
Punjabi American Heritage Society	95993	http://punjabiheritage.org/			X					

Limits and Information Gaps

Study limitations included challenges obtaining secondary quantitative data and assuring community representation via primary qualitative data collection. For example, most of the data used in this assessment were not available by race/ethnicity. The timeliness of the data also presented a challenge, as some of the data were collected in different years; however, this is clearly noted in the report to allow for proper comparison.

As always with primary data collection, gaining access to participants that best represent the populations needed for this assessment was a challenge. Additionally, data collection of health resources in the service area was challenging. Although an effort was made to verify all resources (assets) collected in the 2016 CHNA through a web search, we recognize that ultimately some resources may not be listed that exist in the service area.

Appendix A: Impact of Actions Taken Since Previously Conducted CHNA

Rideout Regional Medical Center

Prior to this CHNA, RRMC conducted its most recent CHNA in 2016. The 2016 CHNA identified the following seven prioritized health needs:

1. Access to quality primary care health services and prescription medication
2. Access to affordable, healthy food
3. Access to mental, behavioral, and substance abuse services
4. Access to specialty care
5. Health education and health literacy
6. Access to transportation and mobility
7. Collaboration and coordination among community services and programs

Working within its mission and capabilities, RRMC dedicated efforts to help impact all seven prioritized health needs over the last three years. Specific outcomes of these efforts are described below.

ACCESS TO QUALITY PRIMARY CARE HEALTH SERVICES AND PRESCRIPTION MEDICATION

Rideout Health initiated a number of projects to positively impact the access to primary care and prescription medications. Of the initiatives set forth, the following have been most impactful:

Meds to Beds Program – After conducting a Community Pharmacy Needs Plan, it was even more clear that there are many challenges related to prescription medications. These challenges include a lack of availability for low-cost medications, as well as a lack of understanding medications. Rideout Health is among many hospitals nationwide that has begun a "Meds-to-beds" program, in which prescription drugs are given directly to patients just before they are sent home from the hospital or emergency room. This serves as more than just a convenience; in some cases this program assures that patients receive the medications necessary to complete treatment or to treat chronic medical conditions. Rideout Health partners with the Medicine Shoppe Pharmacy for both discharge counseling and dispensing. In 2017 alone, Rideout provided $22,329.21 of drugs to 79 patients.

Street Nursing Program – In 2017, Rideout Health initiated a street nursing program to bring healthcare services to the growing homeless population in Yuba and Sutter Counties. Well over 1,000 people are living in tents or in cars near our river's edge. A social worker and a registered nurse are currently working at both Coordinated Entry sites providing care to the homeless population in our area. The ultimate goal is to provide tele-health services while providing care in the streets. Rideout Health was awarded a grant to purchase and outfit a vehicle to serve as a mobile clinic.

Continuous Recruitment – In addition to initiatives above, Rideout Health continues to recruit primary care physicians and mid-level providers (nurse practitioners and physician assistants) to the Yuba-Sutter area.

ACCESS TO AFFORDABLE, HEALTHY FOOD

Rideout Health developed a food insecurity screening process for all patients admitted to Rideout Regional Medical Center. Patients are screened upon admission by the case managers. If identified with food insecurity, a referral is submitted to the local Yuba-Sutter Food Bank where the volunteers gather a

three-day supply of specific food for each patient. This food is boxed and ready for the patient upon discharge from the hospital. Since the program began, 318 referrals to the Y-S Food Bank and/or church food pantries have been made. In addition, Rideout's commitment to this partnership with the Y-S Food Bank includes volunteering at the Food Bank warehouse once a month and sponsoring food drives. As a result of the past three food drives, Rideout associates have generously donated 2,050 pounds of non-perishable food to the Yuba Sutter Food Bank. Future plans with the Yuba Sutter Food Bank include distributing food to food desserts through Rideout's new mobile clinic (2019-2020).

ACCESS TO MENTAL, BEHAVIORAL, AND SUBSTANCE ABUSE SERVICES

The Behavioral Health Collaborative - Recognizing the impact of patients placed on involuntary psychiatric holds being sent to the emergency department, Rideout Health came up with a new innovative way to care for the behavioral health patient waiting in their emergency department. The goal was to deliver the highest quality care for the psychiatric patient while they were in the emergency department. Realizing the county would be closing their involuntary psychiatric services, Rideout worked collaboratively with the county and agreed to imbed county paid crisis counselors in the emergency department 24 hours a day. Using tele-psychiatry services and clear clinical pathways the team worked together to see 100 percent of the patients with a behavioral health diagnosis. Medications are started or resumed, safety plans designed, and follow up appointments are arranged by the team. As a team, the county and hospital have created a process to provide high quality care to the psychiatric patient in the ED. The Behavioral Health Collaborative have seen 1898 behavioral health patient visits last year. By working together, we have safely discharged back into our community approximately 50% of the patients seen. This ability to discharge patient's home is made possible through the creation of a robust safety program and discharge plans by our county worker's and tele-psychiatry services. Every patient receives true psychiatric care while they are in the ED and this includes the same type of assessment, medication recommendations, and discharge and safety plans performed by behavioral health experts.

Additional Mental Health and Substance Abuse Services
- Rideout Health aided the Rideout Emergency Department Sexual Assault Response Team (SART) by providing equipment and training to help women and children of sexual assault crimes
- Rideout Health provided meeting space to host Sutter-Yuba Network of Care and Mental Health Services training on Suicide Prevention and Aggression Replacement
- Facilitates the Grief Support group to help people grieve in safe, creative and healing ways, including a Grief During the Holidays session
- Yuba-Sutter Health Care Council - to help fight opioid abuse

ACCESS TO SPECIALTY CARE

Rideout Health Clinics has opened, enhanced or added new specialty care physicians to our clinics. These new physicians now provide patient care at:
- Rideout Interventional Cardiology Clinic
- Rideout Women's Health Clinic
- Rideout Vascular Clinic
- Rideout Orthopedics Clinic
- Rideout Primary Care Clinic
- Rideout Urology Clinic
- Rideout General and Bariatric Surgery Clinic

HEALTH EDUCATION AND LITERACY

Community Health Education resources focusing on wellness and prevention were provided to individuals who represent patients, the underserved and broader communities. Our free Community Health Education Classes include:

- Tobacco Cessation Classes: A free four-part-session series entitled Clean Break is offered monthly for tobacco users to learn behavior modification to maintain a tobacco-free lifestyle
- Cancer Programs: Rideout offers a variety of support groups and therapy sessions for cancer patients and their caregivers
- Diabetes Classes: Topics include: An Overview of Diabetes; Healthy Food Choices; Physical Activity; Blood Glucose Monitoring; Medications; Complications of Diabetes; Sick Day Management; Self-Care Behaviors Healthy Eating and Nutrition
- Childbirth Education: Childbirth and Breastfeeding Preparation held bi-monthly. Mothers-to-be who are in their first and second trimester. Topics include normal breastfeeding (how to and why to), discomforts of pregnancy, comfort measures, body changes, nutrition and more. Maternity Department Tours are scheduled monthly and are designed to familiarize mothers-to-be and their families with the labor and delivery nursery and post-partum units.
- Rideout Healthy Kids: For youngsters, we offer our free Rideout Healthy Kids School Assemblies for K-8th grade students in Yuba, Sutter and Colusa counties. This program provides health education to elementary and middle school children in an interactive musical theater performance. Since Spring 2014, Rideout Healthy Kids has performed every fall and spring in 10 tours, over 175 performances for over 65,000 students, faculty, staff and community members at public and private schools, community health fairs and other events, service clubs, banquets and many other community activities, bringing the message of good health, wellness and encouragement to audiences young and old.
- Stop-the-Bleed®: A national awareness campaign was established and has been cultivating grassroots efforts that 10 encourage bystanders to become trained, equipped, and empowered to help in a bleeding emergency before professional help arrives. The Rideout Trauma Team members led by Dr. Amir Amiri, Trauma Medical Director, held six sessions over 2 days at the Yuba County Government Center where they instructed 200+ Yuba County government officials and staff members. The Trauma Team has also presented classes at several locations in Yuba and Sutter counties including Wheatland Union High School, Yuba College, Lindhurst High School and to ROP Students and educated many Rideout Hospital staff members. 541 people have been educated since September 2017
- California Highway Patrol Safe Senior Driving: Rideout Health provides conference space for Safe Senior Driving classes through California Highway Patrol Safe Senior Driving program
- Translations: Rideout Health continues to provide translation of vital written material in Spanish, Punjabi and Hmong languages, including drug- testing consent, home care consent, information for women on caring for their newborn, breast self-exams and mammography
- Rideout Health Teen Leadership Council (TLC): Thirty-nine area high school students from eight surrounding high schools are recruited to attend the TLC, a 12 month program designed to engage young adults who have demonstrated outstanding leadership skills and a strong desire to make a difference in our community and healthcare.

ACCESS TO TRANSPORTATION AND MOBILITY

The Rideout Health Foundation assists cancer center patients, senior care and other patients with transportation needs and more by providing provisions such as gas cards, bus passes and food cards to help indigent or low-income patients with their travel needs. A new passenger van was recently donated

to Rideout Health by the Geweke Caring for Women Foundation. The new van soon will offer patients free transportation to and from the hospital and the cancer center.

COLLABORATION AND COORDINATION AMONG COMMUNITY SERVICES AND PROGRAMS
Rideout Health coordinates with the Sutter and Yuba County Health agencies and local low-income health providers to distribute health information and assist with health services including a no cost/low cost directory which publishes in the local newspaper and is made available at Sutter and Yuba County Public Health.
Additional Collaborations:
- SART Program: Rideout Health aids the Rideout Emergency Department Sexual Assault Response Team (SART) for equipment and training to help women of assault crimes. Rideout Health collaborates with law enforcement and Women's Advocacy Groups to establish the Yuba Sutter Sexual Assault Response Team
- TIP Program: Rideout Health provided support to train volunteers for a Trauma Intervention Program (TIP). This program has more than 25 local citizens who provide comfort and support to those in distress. Rideout Health financially supports the Trauma Intervention Program.
- Rideout Health representatives are Active in Community: Groups, committees and collaboratives, including United Way, American Cancer Society, American Red Cross Northeastern California, Sutter and Yuba County Public Health, Yuba-Sutter Chamber of Commerce, Cancer Care Network, Yuba Sutter Homeless Consortium and UC Davis Health System, among others. These committees and programs, along with our dedicated Board of Directors, set the pace for assessing the communities' needs in regard to health care.

Sutter Surgical Hospital – North Valley

Prior to this CHNA, SSHNV conducted its most recent CHNA in 2016. The 2016 CHNA identified 7 specific health needs. Working within its mission and capabilities, SSHNV focused its implementation on:
1. Access to quality primary care services and prescriptions.
2. Access to health education and health literacy.
3. Access to mental health, behavioral, and substance abuse services.

SSHNV developed plans to address these health needs and the specific outcomes of these efforts are described below.

ACCESS TO PRIMARY CARE SERVICES AND PRESCRIPTIONS
Pink October and Women's Health Screenings
In 2016, 302 uninsured or underinsured women received screenings. In Yuba City, the annual Pink October effort was another resounding success, with 119 underinsured women receiving low-cost mammograms at our Sutter facilities in the Yuba-Sutter service area, while another 101 women received low cost well woman exams through the Women's Health Screening event held at Sutter facilities in Yuba City and Brownsville.

In 2017, 213 uninsured or underinsured women received screenings. In Yuba City, the annual Pink October effort was another resounding success, with 106 underinsured women receiving low-cost mammograms at our Sutter facilities in the Yuba-Sutter service area, while another 107 women received

low cost well woman exams through the Women's Health Screening event held at Sutter facilities in Yuba City and Brownsville.

In 2018, 94 uninsured or underinsured women received no-cost well woman exams and 107 women received no-cost mammograms through the Women's Health Screening event held at Sutter facilities in Yuba City.

Prostate Screenings
In 2016, Sutter Health hosted a Prostate Screening event in Sutter County and a total of 23 men received low cost screenings. Prostate screening event was discontinued in 2017.

Tats Off
In 2016, Tats Off program served 312 adults. In 2017, Tats Off program served 4 adults and services were discontinued in 2017.

ACCESS TO HEALTH EDUCATION AND HEALTH LITERACY

Fit Quest/ Shady Creek Education Foundation
In 2016, the program reached 36 Schools in Yuba and Sutter Counties, with 108 school assemblies and an expanded curriculum focus on nutrition, physical activity and mental wellness at Shady Creek Outdoor School. Over 2,400 local students have been immersed in the yearlong exposure to the Fit Quest curriculum, which are 1,300 more students than last year. Several hundred additional local students have participated in the Fit Quest assemblies at various schools that also include the younger students. The expanded curriculum and role modeling of the Naturalists have favorably impacted the nearly 5,000 students who have attended from all counties in our service area, in choosing to drink water, make better nutrition choices, to stay active and an improved sense of self.

In 2017, the program reached 43 Schools in Yuba and Sutter Counties, with 129 school assemblies and an expanded curriculum focus on nutrition, physical activity and mental wellness at Shady Creek Outdoor School. Over 3,500 local students have been immersed in the yearlong exposure to the Fit Quest curriculum, which are 1,100 more students than last year. Several hundred additional local students have participated in the Fit Quest assemblies at various schools that also include the younger students. The expanded curriculum and role modeling of the Naturalists have favorably impacted the over 5,000 students who have attended from all counties in our service area, in choosing to drink water, make better nutrition choices, to stay active and an improved sense of self.

In 2018, the program reached 42 Schools in Yuba and Sutter Counties, with 126 school assemblies and an expanded curriculum focus on nutrition, physical activity and mental wellness at Shady Creek Outdoor School. Over 2,500 local students have been immersed in the yearlong exposure to the Fit Quest curriculum. Several hundred additional local students have participated in the Fit Quest assemblies at various schools that also include the younger students. The expanded curriculum and role modeling of the Naturalists have favorably impacted the over 5,000 students who have attended from all counties in our service area, in choosing to drink water, make better nutrition choices, to stay active and an improved sense of self.

Physical Education Specialists
In 2016, Sutter Health funded a Physical Education Specialist which resulted in all grade levels performing above the California average for the Physical Fitness Proficiency Testing.

In 2017, the Physical Education Specialists program discontinued in 2017 due to Yuba City Unified School District receiving a grant to fund existing Physical Education Specialists and hire additional staff.

ACCESS TO MENTAL HEALTH, BEHAVIORAL, AND SUBSTANCE ABUSE SERVICES

Area Wide Mental Health Strategy
Steinberg Institute
Hosted over 300 meetings ranging from forums, briefings, informational hearings, and legislative meetings over the course of the past 6 months. During the first half of 2018, we have sponsored 7 internships. Each legislative or communications focused internship is a minimum of 12 hours a week and lasts for 10-12 weeks.

Social Changery
Providing production and technical assistance to Sutter Health's in-development workplace mental health curriculum—a groundbreaking, innovative and progressive offering to the public that uses a human design and threshold concept methodology. Goals of the curriculum are to demonstrate significant culture change: elimination of social prejudice, increase in social inclusion, and employer engagement in best practices for psychological health and safety in the workplace.

The Stability Network
Partnership with Sutter includes participation of Stability Leaders in Sutter's workplace mental health curriculum as video participants sharing their stories, with ongoing planning to create highly effective learner experiences through live events that showcase Sutter's curriculum combined with Stability Leaders speaking.

During the first half of 2018, Stability Network: recruited 10 leaders; drafted a training strategy; drafted a public speaking manual; created a speakers bureau; began to deploy speakers; designed and disseminated post talk survey; designed and disseminated Stability Leader impact surveys; and, participated in an industry workgroup on workplace mental health.