SUTTER SOLANO MEDICAL CENTER

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 Solano Medical Center'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

Sutter Solano Medical Center
300 Hospital Drive
Vallejo, CA 94589

Conducted by

January 2019

Acknowledgements

We are deeply grateful to all those who contributed to the community health needs assessment conducted on behalf of Sutter Solano Medical Center. First, 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. We also appreciate the collaborative spirit of the consultants at Harder+Company and their willingness to share the information they gathered while conducting a health assessment across Solano and Napa Counties for Kaiser Permanente. 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.

Community Health Insights (www.communityhealthinsights.com) conducted the assessment on behalf of Sutter Solano Medical Center. Community Health Insights is a Sacramento-based research-oriented consulting firm dedicated to improving the health and well-being of communities across Northern California. This joint report was authored by:

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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 Sutter Solano Medical Center (SSMC) 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), and part of the assessment was conducted in collaboration with Harder+Company, a consulting firm conducting another CHNA on behalf of Kaiser Permanente in portions of the same service area.

Community Definition

The definition of the community served included the primary service area of the hospital, the City of Vallejo, California, and surrounding communities as defined by six ZIP Codes—94503, 94510, 94589, 94590, 94591, and 94592. This is the designated service area because the majority of patients served by SSMC resided in these ZIP Codes. Considered a North San Francisco Bay community, Vallejo is an incorporated city in Solano County. The service area included one ZIP Code, 94503 (American Canyon), located in Napa County. The total population of the service area was 170,925.

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.[1] 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 one-on-one and group interviews with 28 community health experts, social-service providers, and medical personnel. Further, 90 community residents participated in seven 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 sources. Data were also analyzed to detect emerging health needs beyond those 10 PHNs identified in previous CHNAs.

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[1] See: http://www.countyhealthrankings.org/

List of Prioritized Significant Health Needs

The following significant health needs were identified and are listed below in prioritized order. One of the health needs, number five, is a health need that was not identified in earlier CHNAs.

1. Access to basic needs, such as housing, jobs, and food
2. Access to mental/behavioral/substance-abuse services
3. Injury and disease prevention and management
4. Access to quality primary care health services
5. Increasing community connection
6. Active living and healthy eating
7. Access and functional needs
8. Safe and violence-free environment
9. Pollution-free living environment

Resources Potentially Available to Meet the Significant Health Needs

In all, 217 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 Vallejo community. It provides an overall health and social examination of SSMC's service area 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) every three years 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)" (p. 78963).[2]

This report documents the processes, methods, and findings of a CHNA conducted on behalf of Sutter Solano Medical Center (SSMC), located at 300 Hospital Drive, Vallejo, California. SSMC's primary service area includes the communities of Vallejo, Benicia, and American Canyon. Vallejo and Benicia are both in incorporated cities located in Solano County, while American Canyon is located in Napa County, California. The total population of the service area was 170,925.

SSMC is an affiliate of Sutter Health, a nonprofit healthcare system. The CHNA was conducted over a period of seven months, beginning in June 2018 and concluding January 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 on the behalf of SSMC. 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 SSMC solicited and considered the input received from persons representing the broad interests of the community. Then, the community served by SSMC and how the community was identified is described. This is followed by a description of the Community Health Vulnerability Index and the identification of Communities of Concern for the SSMC 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 SSMC 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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[2] *Federal Register*, Vol. 79, No. 250, (Wednesday, December 31, 2014). 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 SSMC service area. In all, 10 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 health need. 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.

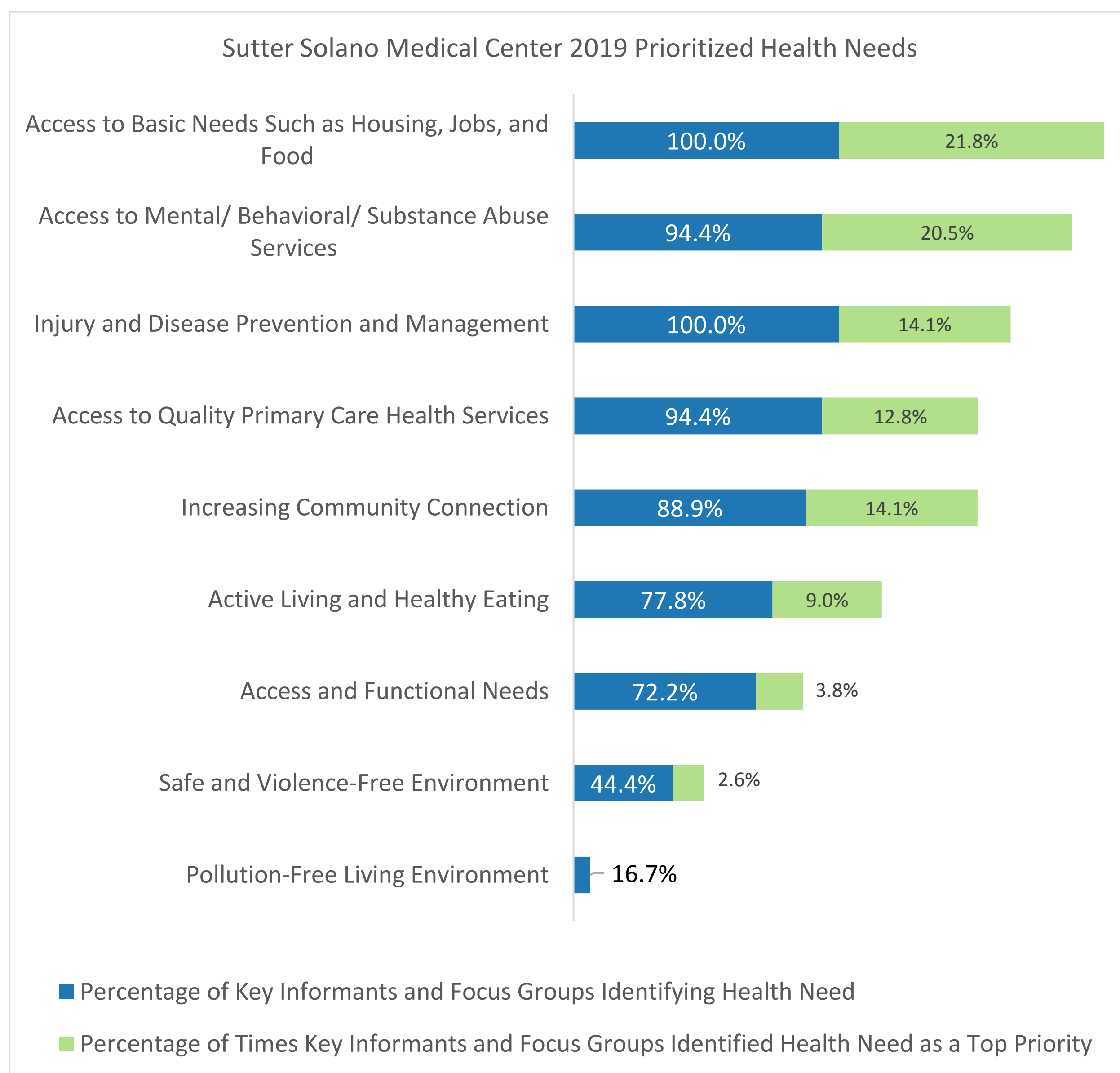

Figure 1: Prioritized, significant health needs for SSMC service area

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 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 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[3] says 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.

<table>
<tr><th>Quantitative Indicators</th><th>Qualitative Themes</th></tr>
<tr><td>

Life Expectancy at Birth
Infant Mortality
Age-Adjusted Mortality
Child Mortality
Premature Age-Adjusted Mortality
Years of Potential Life Lost
Health Professional Shortage Area (HPSA)
Medically Underserved Area
Unemployed
Children with Single Parents
Social Associations
Limited Access to Healthy Food

</td><td>

Lack of affordable housing

Housing/renting prices high, pricing people out of housing
Many seniors getting pushed out the county due to housing price hikes
Shelters having closed over the last year
Lack of low-income housing in the area

Housing costs too high—landlords not using Section 8 vouchers because they can make more money in fair market rent
3–4 month wait for low-income housing

Lack of employment opportunities in the area

Need for increased job training
Low-paying jobs in the county
Lacking a livable wage in the county

Language barriers preventing people from accessing social services and interacting in their children's schools
High concentrations of both urban poverty in Vallejo and Fairfield, and rural poverty in Dixon and Rio Vista
Many families struggling with food insecurity
Limited access to quality healthy food

Seniors struggling to get access to basic needs on fixed incomes
Many food deserts in the area

Homelessness—county struggles with both chronic homelessness and situational homelessness

Concerns around hygiene, homeless people needing locations to maintain hygiene while homeless (e.g., portable showers)
Interaction with law enforcement difficult for homeless population

Many area immigrants not seeking services due to fear of deportation—living without many basic needs
Affordable childcare for working families
Many commuting to the Bay Area for work—long commute time and time away from families

</td></tr>
</table>

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

2. 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.

Quantitative Indicators	Qualitative Themes
• Life Expectancy • Suicide Mortality • Poor Mental Health Days • Drug Overdose Deaths • Excessive Drinking • Social Associations	• Lack of adequate mental health clinics in the area • Mental health services are difficult to access locally • Need for whole family mental healthcare • High use of marijuana ○ Legalization a concern; use in youth populations • High opioid use • High use of methamphetamines • High use of cocaine and heroin • High use of tobacco, specifically e-cigarettes and vaping • Depression in seniors and youth a concern • Need for increased cultural sensitivity for people struggling with mental illness • Hospitals struggling to provide treatment and prevention for behavioral health issues • Stigma about mental illness prevent kids from seeking care • Schools needing more trained counselors and therapists • Primary care health records not connected to behavioral healthcare records—treatment and prevention in silos • Teenagers and young adults struggling with drug use • Families stressed from daily living and not having needs met • Need more awareness and education about mental illness in the K–12 schools

3. Injury and Disease Prevention and Management

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.

Quantitative Indicators	Qualitative Themes

• Infant Mortality
• Alzheimer's Mortality
• Child Mortality
• CLD Mortality
• Diabetes Mortality
• Hypertension Mortality
• Influenza Pneumonia Mortality
• Kidney Disease Mortality
• Stroke Mortality
	• Need an increased focus on prevention of illness and injury, including addressing the social determinants of health
	• Increased connection of services for area residents
	    ○ Development of a central location/hub/center for connecting area residents to needed health and social resources
	    ○ "Coordination integration" of existing services
	    ○ More community events for increasing awareness about services available are needed
	• Perception that area lacks services for seniors

• Suicide Mortality
• Unintentional Injury Mortality
• Diabetes Prevalence
• Drug Overdose Deaths
• Excessive Drinking
• Adult Obesity
• Physical Inactivity
• STI Chlamydia Rate
• Adult Smokers
• Motor Vehicle Crash Deaths
	• Need for more prevention and education in reducing illness and injuries for the aging population
	    ○ Need for fall-risk prevention (information and community courses)
	    ○ End-of-life planning
	    ○ Services for cognitive decline, dementia, Alzheimer's
	    ○ Increased need for caregivers for the aging population
	• Increased need for easy-to-access vaccinations and immunizations (flu shot, pneumonia vaccinations)
	• More hearing and vision screening and treatment
	• Many area programs for families not affordable
	• Youth/teens needing more opportunities to engage with the community and each other
	• School district needing to increase parental involvement in schools
	• Better prevention and treatment for asthma, obesity, diabetes, STIs, hepatitis, hypertension, and TB
	• Need increased focus on prenatal and maternal health supports
	• Need for healthy food preparation courses
	• Residents need education on budgeting and financial planning

4. 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
• Hypertension Mortality
• Influenza Pneumonia Mortality
• Kidney Disease Mortality
• Stroke Mortality
• Cancer Female Breast
• Cancer Colon and Rectum
• Diabetes Prevalence
• Cancer Lung and Bronchus
• Cancer Prostate
• HPSA Primary Care
• HPSA Medically Underserved Area
• Mammography Screening
	• Lacking adequate locations to access healthcare services in a timely manner
	• Patients cannot get appointments in a timely manner
	• Community concerns over quality of care
	• Need for increased cultural competency for health providers
	• Need for patient education and support about how to navigate healthcare services
	• Insurance coverage not equating to access
	• Increased need for more school-based health centers
	• Lack of care coordination in the county
	    ○ Community members showing up in the emergency room
	    ○ Lack of connection with care after discharge
	• Lack of adequate board-and-care homes in the area
	    ○ Need for recruitment and retention of quality care providers
	• Need for increased connection to mental healthcare for area families
	• Spanish-speaking community members struggling to access care due to fear of deportation
	• Access to medical care and mental healthcare linked to housing as a basic need
	• Need for more integration between community clinics and local hospitals

5. Increasing Community Connection

As humans are social beings, community connection is a crucial part of living a healthy life. People have a need to feel connected with a larger support network and the comfort of knowing they are accepted and loved. Research suggests “individuals who feel a sense of security, belonging, and trust in their community have better health. People who don’t feel connected are less inclined to act in healthy ways or work with others to promote well-being for all.”[4]

Quantitative Indicators	Qualitative Themes
No quantitative indicators assigned	• Solano County changing rapidly due to Bay Area and Napa Valley growth • Participants indicating that rapid change in the area has resulted in decreased connectedness between residents and providers • Focus on opportunities for increased community building • Need for cross-sectoral partnerships—need to establish a “no wrong door” infrastructure among service providers • Need for better connection between the community and law enforcement • Need for city and county leaders to bring the community together—work on collaborative city and county efforts • Many abandoned buildings in the area—should turn these into community assets • Improvements to local schools to show investment in the youth and future of the Solano County community • Foster greater respect for adults and seniors in area youth • Increasing alignment between the local higher educational institutions to coordinate pathways and internships for young people for future success • Participants indicating that many community members experience racism and discrimination from local service providers • Encouraging all community members to reach out for support and connection • Need for funding and more social resources in the county

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.

Quantitative Indicators	Qualitative Themes
• Cancer Mortality • Diabetes Mortality • Hypertension Mortality • Kidney Disease Mortality • Stroke Mortality • Cancer Female Breast • Cancer Colon and Rectum • Diabetes Prevalence	• Increased access to healthy foods needed in many areas in Vallejo • High degree of food insecurity in many areas • Areas in the county are food deserts with little access to healthy foods • Abundance of fast food establishments in the area • Community members in need of increased knowledge about how to purchase and cook healthy foods on a budget • Low quality food from the many food pantries

[4] Robert Wood Johnson Foundation. (2016). *Building a Culture of Health: Sense of Community*. See: https://www.rwjf.org/en/cultureofhealth/taking-action/making-health-a-shared-value/sense-of-community.html

• Cancer Prostate • Limited Access to Healthy Food • Physical Inactivity • Adult Obesity	• Community members needing training on healthy meal menu planning • High rates of obesity in young adults and youth • High rates of prediabetes and diabetes • Youth in need of better nutrition and more daily exercise • Community lacks grocery stores • "Nobody walks in Solano County" • Lack of access to safe public parks

7. 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	• Public transportation system inadequate in the county • Traffic during commute times on major highways very congested • Need for increased transportation services for seniors and youth • Handicap accessibility on major walkways and many buildings is lacking • Lack of coordinated transportation in the area negatively affects access to healthcare and social support services • Transit time on public transportation long and public transportation unaffordable for most families • Difficult to travel from one major city in the county to another on public transportation • Many roads and sidewalks in the area not well maintained—lots with cracks and potholes

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]

Quantitative Indicators	Qualitative Themes
• Life Expectancy at Birth • Poor Mental Health Days • Homicides • Motor Vehicle Crash Deaths • Violent Crimes	• Lack of access to safe public parks • Lack of adequate police presence and protection • High rates of crime and violence in cities • Many residents feeling unsafe on a daily basis • Kids/youth expressing pressure to join gangs • Domestic violence and sexual assault prevalent in the area • Participants reporting that a domestic violence shelter has recently closed • Child prostitution and sex trafficking cases in area

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

• Social Associations	• Participants perceiving that area leadership is unwilling to acknowledge presence of sex trafficking in the area and invest in prevention efforts

9. *Pollution-Free Living Environment*
Living in a pollution-free environment is essential for health. Individual health is determined by a number of factors, and some models show that one's living environment, including the physical (natural and built) and sociocultural environment, has more impact on individual health than one's lifestyle, heredity, or access to medical services.[6]

Quantitative Indicators	Qualitative Themes
• Cancer Mortality • CLD Mortality • Cancer Female Breast • Cancer Colon and Rectum • Cancer Lung and Bronchus	• Concerns over water safety • Poor air quality in the county; refineries in the Bay causing pollution • High traffic congestion on highways causing pollution • Poor air quality in the county due to fires • Fires in the region greatly affecting county residents

Populations 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."[7] The figure below describes populations in the SSMC 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?" Responses were analyzed by counting the total number of times all key informants and focus-group participants mentioned a particular group as one experiencing disparities. Figure 2 displays the results of this analysis.

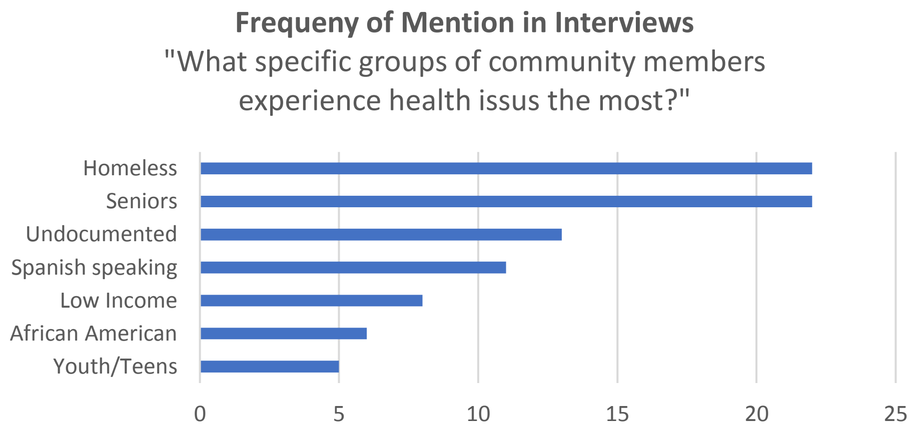

Figure 2: Populations experiencing disparities the SSMC service area

[6] See Blum, H. L. (1983). *Planning for Health*. New York: Human Sciences Press
[7] 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.

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.[8] 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. SSMC requested written comments from the public on its 2016 CHNA and most recently adopted implementation strategy through SHCB@sutterhealth.org.

At the time of the development of this CHNA report, SSMC had not 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. SSMC will continue to use its website as a tool 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 12 interviews with 28 community health experts as well as 7 focus groups conducted with a total of 90 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 SSMC 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

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[8] See http://www.countyhealthrankings.org/

any, of the PHNs were present in the hospital's 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 of SSMC. This area was defined by six ZIP Codes—94503, 94510, 94589, 94590, 94591, and 94592. This service area was designated because the majority of patients served by SSMC resided in these ZIP Codes. Vallejo is an incorporated city located in Solano County along the North San Francisco Bay region. Considered a waterfront community because of its location, Vallejo is home to approximately 115,000 residents. Vallejo also is home to Mare Island, a decommissioned naval base and shipyard that was instrumental in shaping the rich history of the city. The service area also included the incorporated City of Benicia, located south of Vallejo, as well as American Canyon, an incorporated city north of Vallejo. Benicia is located in Solano County, while American Canyon is located in Napa County, California. The total population of the service area was 170,925. The service area is shown in Figure 3.

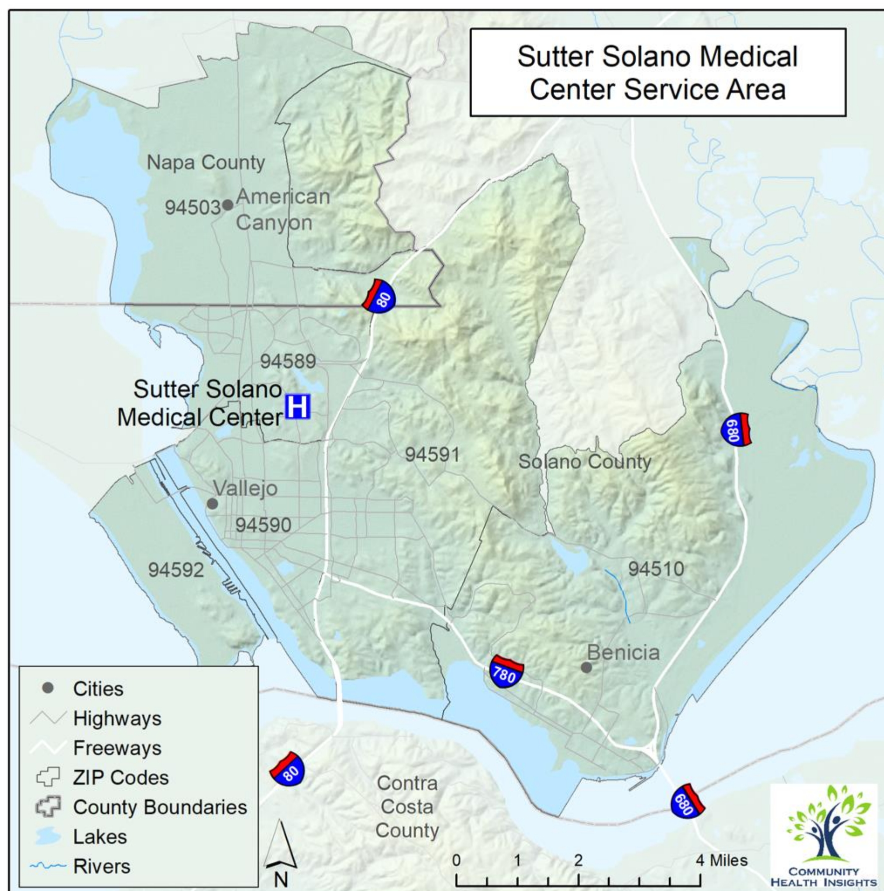

Figure 3: Community served by SSMC

Population characteristics for each ZIP Code in the service area are presented in Table 1. These are compared to the state and county characteristics for descriptive purposes. Any ZIP Code with rates that varied negatively when compared to the state or county benchmarks is highlighted. Because American Canyon is located in Napa County, rates from this ZIP Code (94503) are compared only to the Napa County and state benchmarks.

Table 1: Population Characteristics for Each ZIP Code Located in the SSMC Service Area

ZIP Code	Total Population	% Minority	Median Age	Median Income	% Poverty	% Unemployed	% Uninsured	% No HS Graduation	% Living in High Housing Costs	% with Disability
94510	27,786	39.1	44.3	$87,569	7.1	6.2	5.2	4.5	33.2	10.1
94589	30,593	82.4	37.4	$57,316	18.0	13.9	14.4	14.9	44.1	12.0
94590	36,807	72.2	36.6	$41,530	26.2	14.7	13.3	15.3	49.0	14.6
94591	54,493	73.4	40.6	$73,897	10.6	11.9	9.5	10.3	42.3	12.5
94592	880	58.0	34.8	$110,648	11.8	9.0	5.6	1.5	49.4	12.6
Solano County	*429,596*	*60.6*	*37.5*	*$69,227*	*12.7*	*10.0*	*9.2*	*12.5*	*39.8*	*12.1*
94503	20,366	75.4	35.9	$83,627	9.7	8.3	6.3	16.1	36.4	10.6
Napa County	*140,823*	*46.3*	*40.7*	*$74,609*	*8.8*	*6.6*	*9.1*	*16.1*	*38.9*	*11.1*
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 4 displays the Community Health Vulnerability Index (CHVI) for the SSMC 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 supported in the literature as being more likely to experience disparities. (Interested readers are referred to the technical section of this report for further details as to the CHVI construction.)

- 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

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

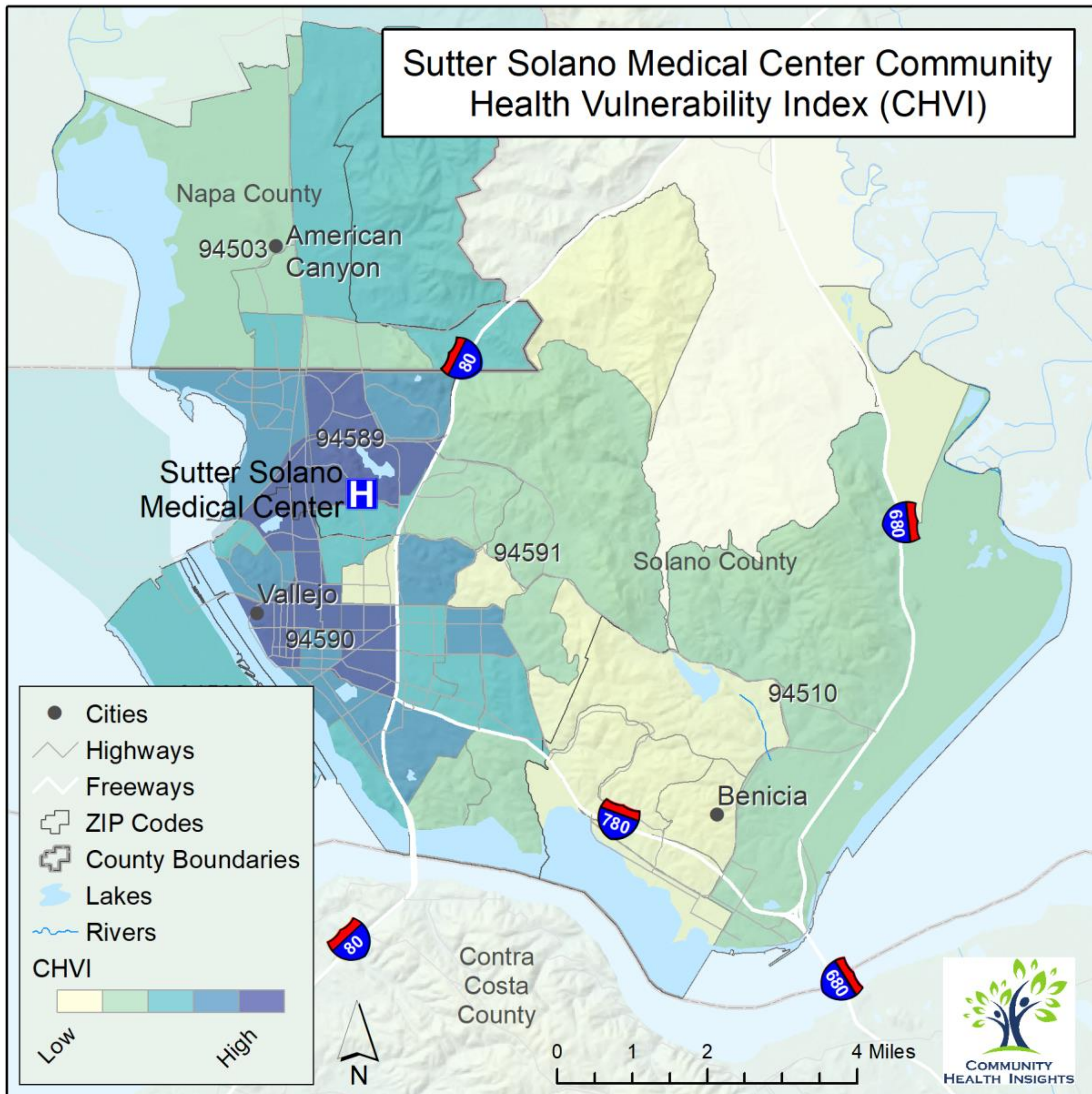

Figure 4: Community Health Vulnerability Index for SSMC

In the figure, the census tracts with the darkest shading had the highest overall CHVI scores (greatest vulnerability). These included those in the Vallejo area. This area most likely has 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 has been 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 two ZIP Codes that met the criteria to be classified as Communities of Concern. These are noted in Table 2, with the census population provided for each, and they are displayed in Figure 5.

Table 2: Identified Communities of Concern for the SSMC Service Area

ZIP Code	*Community/Area*	*Population*
94589	Northern Vallejo	30,593
94590	Southern Vallejo	36,807
Total Population in Communities of Concern		67,400
Total Population in Hospital Service Area		170,925
Percentage of Service Area Population in Community of Concern		39.4%

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

Figure 5 displays the ZIP Codes highlighted in pink that are Communities of Concern for the SSMC service area.

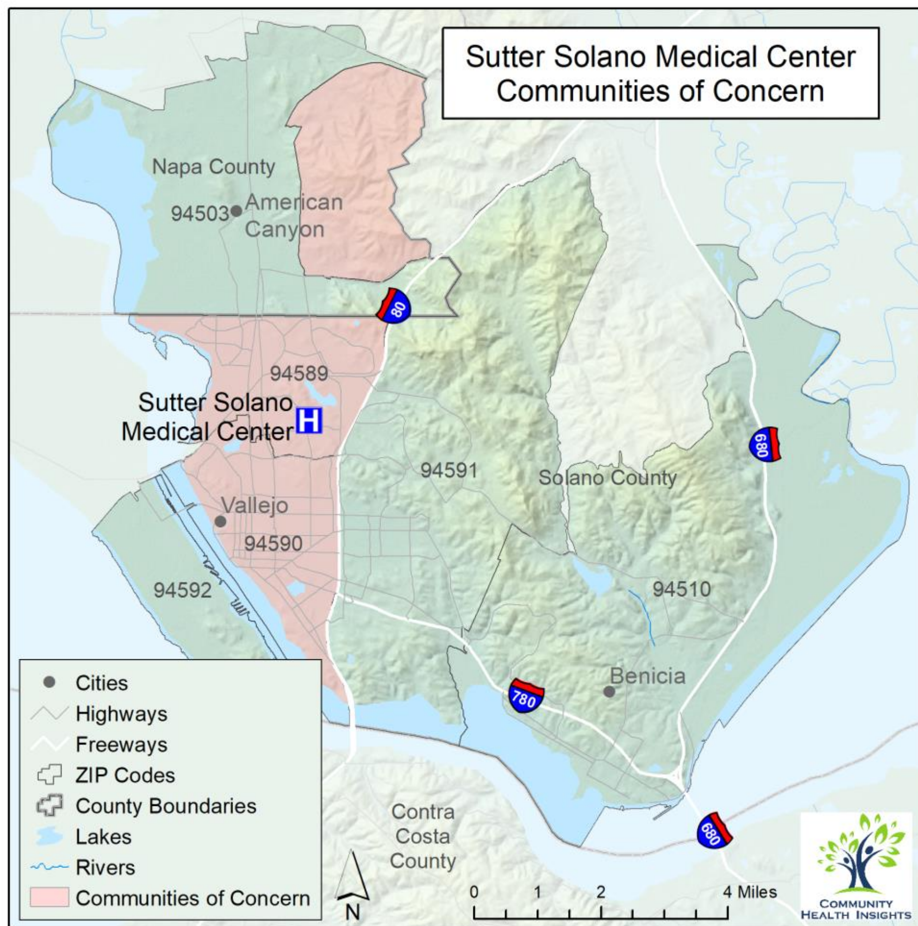

Figure 5: SSMC Communities of Concern

Resources Potentially Available to Meet the Significant Health Needs

In all, 217 resources were identified in the SSMC service area that were potentially available to meet the identified significant health needs. These resources were provided by a total of 76 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 *2016 Sutter Solano Medical Center CHNA*, 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 3.

Table 3: Resources Potentially Available to Meet Significant Health Needs in Priority Order

Significant Health Needs (in Priority Order)	Number of resources
Access to basic needs such as housing, jobs, and food	44
Access to mental/behavior/substance-abuse services	31
Injury and disease prevention and management	32
Access to quality primary healthcare services	21
Increasing community connection	29
Active living and healthy eating	24
Access and functional needs	13
Safe and violence-free environment	18
Pollution-free living environment	5
Total Resources	***217***

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 Hospital

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 following summarizes the impact of actions taken by SSMC.

Prior to this CHNA, SSMC conducted their most recent CHNA in 2016. The 2016 CHNA identified eight significant health needs. Working within its mission and capabilities, SSMC focused its implementation strategy on 1) active living and healthy eating, 2) access to behavioral health services, 3) access to high quality care and services, and 4) meeting basic needs (e.g., food security, housing, economic security, education). SSMC developed plans and partnered with local agencies and organizations to address these health needs, and the outcomes of these efforts are described below.

ACTIVE LIVING AND HEALTHY EATING

Touro University California—Project Happy (Health Attitudes Produce Positive Youth)

In 2018 (July–December), Touro University's Project Happy served 27 individuals, providing them with health education service referrals.

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

ACCESS TO HIGH QUALITY CARE AND SERVICES, ACCESS TO BEHAVIORAL HEALTH SERVICES, AND BASIC NEEDS

Rio Vista Delta Breeze—Route 50 Service Enhancement

In 2016, the Route 50 Service Enhancement program provided transportation to 357 clients. Funding provided the continuation of route enhancements on the Delta Breeze Route 50 for Rio Vista patients traveling to medical appointments at the Sutter facility in Fairfield, California.

La Clinica de la Raza, Inc.—Sutter Solano Health Care Access Program

In 2016, the Sutter Solano Health Care Access Program served 1,173 patients, providing 1,386 service referrals to primary healthcare, health insurance, transportation, housing, dental, vision, and behavioral health services. In addition, 650 patients established a primary healthcare home, 75 patients became enrolled in health insurance, and 36 patients received mental health services.

In 2017, the Sutter Solano Health Care Access Program served 585 individuals, providing 1,264 service referrals to primary healthcare, health insurance, transportation, housing, dental, vision and behavioral health services. In addition, 1,208 individuals were provided transportation and specialty care services.

La Clinica de la Raza, Inc.—Triage, Transport, Treatment (T3+)

In 2018, the T3+ program served 39 patients, with the addition of 23 new clients, and provided 332 referrals to primary healthcare, health insurance, transportation, housing, dental, vision, and behavioral health services. In addition, T3+ provided 92 patients with an established primary healthcare home.

La Clinica de la Raza, Inc.—Sutter Solano Health Care Access Program, Emergency Department Navigator

Between 2017 and 2018, the ED Navigator has served 2,954 adults, with the addition of 1,159 new adult clients, and provided over 3,245 referrals to primary healthcare and social services.

In 2018 alone, the ED Navigator connected with 1,315 patients, providing them with a total of 940 resources to various health and community related services.

Solano Coalition for Better Health—Transitional Care Program (TCP)

In 2016, the TCP program served 57 people experiencing or near homelessness, providing 307 service referrals to primary healthcare, health insurance, transportation, housing, dental, vision, and behavioral health services. TCP was developed in Solano County to provide a place for homeless or near-homeless individuals referred by partnering hospitals. The program acts to provide a place for these individuals to recuperate from illnesses and link them to services such as healthcare coverage, a primary care provider, source of income, and housing. TCP provides case management for clients at two respite care locations. Case managers work with the clients in meeting basic needs, from helping them obtain a drivers' license and giving assistance with navigation of the healthcare system to arranging housing in preparation for the clients' exit from the program.

In 2017, the TCP program served 56 people experiencing or near homelessness, providing 186 service referrals to primary healthcare, health insurance, transportation, housing, dental, vision, and behavioral health services. In addition, 130 transportation services were provided to TCP.

In 2018, TCP served 46 people experiencing or near homelessness with 93 resources, including primary healthcare, health insurance, behavioral health, dental and vision, housing, basic needs, income assistance, transportation, crisis services, support services, and health education. In addition, 135 transportation services were provided to TCP, and 23 individuals established a primary healthcare home.

Touro University California—Mobile Diabetes Education Center (MOBEC)
In 2016, Touro completed a needs assessment for the communities needing services in Vallejo, California, and identified key activities that became the priority for the mobile classroom. As a result, Touro designed and purchased a travel trailer and truck and created and posted two Touro support positions, a diabetes program coordinator and a driver for the mobile classroom.

SSMC's collaborative relationship with Touro University helped launched the MOBEC, a novel outreach program that strives to raise awareness about type 2 diabetes and prediabetes, providing free screenings to people in Solano County and taking education and screening services directly to residents who are at increased risk of these serious conditions. In the past two years (2017–2018), the MOBEC has served more than 4,000 adults and 309 youth. In addition, the MOBEC has identified 851 new clients with diabetes.

The Leaven—Waterstone Project
The Leaven is an early childhood education intervention program that delivers services in communities throughout Northern California. In 2018, The Leaven opened a new program site at Waterstone, a location in Vallejo. The program provided 30 families with after-school tutoring and mentoring services to at-risk and underserved youth in the community surrounding Sutter Solano Medical Center.

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.

2019 CHNA Technical Section

The following section presents a detailed account of data collection, analysis, and results for the Sutter Solano Medical Center (SSMC) 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 Solano County was compared to the California state benchmark. Indicators where performance was worse in Solano County than in California are highlighted. Rates for Napa County are also included. The associated bar charts show rates for both counties compared to the California State rates.

Length of Life

Table 4: Length of Life Indicators Compared to State Benchmarks

Indicators	Description	Solano County	Napa County	California
Early Life				
Infant Mortality	Infant deaths per 1,000 live births	5.6	3.5	4.5
Child Mortality	Deaths among children under age 18 per 100,000	50.9	32.5	38.5
Life Expectancy	Life expectancy at birth in years	79.3		80.9
Overall				
Age-Adjusted Mortality	Age-adjusted deaths per 100,000	726.7		651.6
Premature Age-Adjusted Mortality	Age-adjusted deaths among residents under age 75 per 100,000	310.1	243.1	268.8
Years of Potential Life Lost	Age-adjusted years of potential life lost before age 75 per 100,000	6,346.9	4,382.9	5,217.3
Chronic Disease				
Stroke Mortality	Deaths per 100,000	42.6	46.3	37.5
CLD Mortality	Deaths per 100,000	40.4	38.2	34.9
Diabetes Mortality	Deaths per 100,000	29.5	19.9	22.1
Heart Disease Mortality	Deaths per 100,000	134.2	200.1	157.3
Hypertension Mortality	Deaths per 100,000	15.2	10.0	12.6
Cancer, Liver, and Kidney Disease				
Cancer Mortality	Deaths per 100,000	186.9	205.8	153.4
Liver Disease Mortality	Deaths per 100,000	12.5	13.2	13.2
Kidney Disease Mortality	Deaths per 100,000	9.9	10.4	8.3
Intentional and Unintentional Injuries				
Suicide Mortality	Deaths per 100,000	12.2	11.6	10.8
Unintentional Injury Mortality	Deaths per 100,000	34.8	37.6	31.2

Indicators	Description	Solano County	Napa County	California
Other				
Alzheimer's Mortality	Deaths per 100,000	43.1	42.9	35.0
Influenza and Pneumonia Mortality	Deaths per 100,000	18.2	18.1	16.0

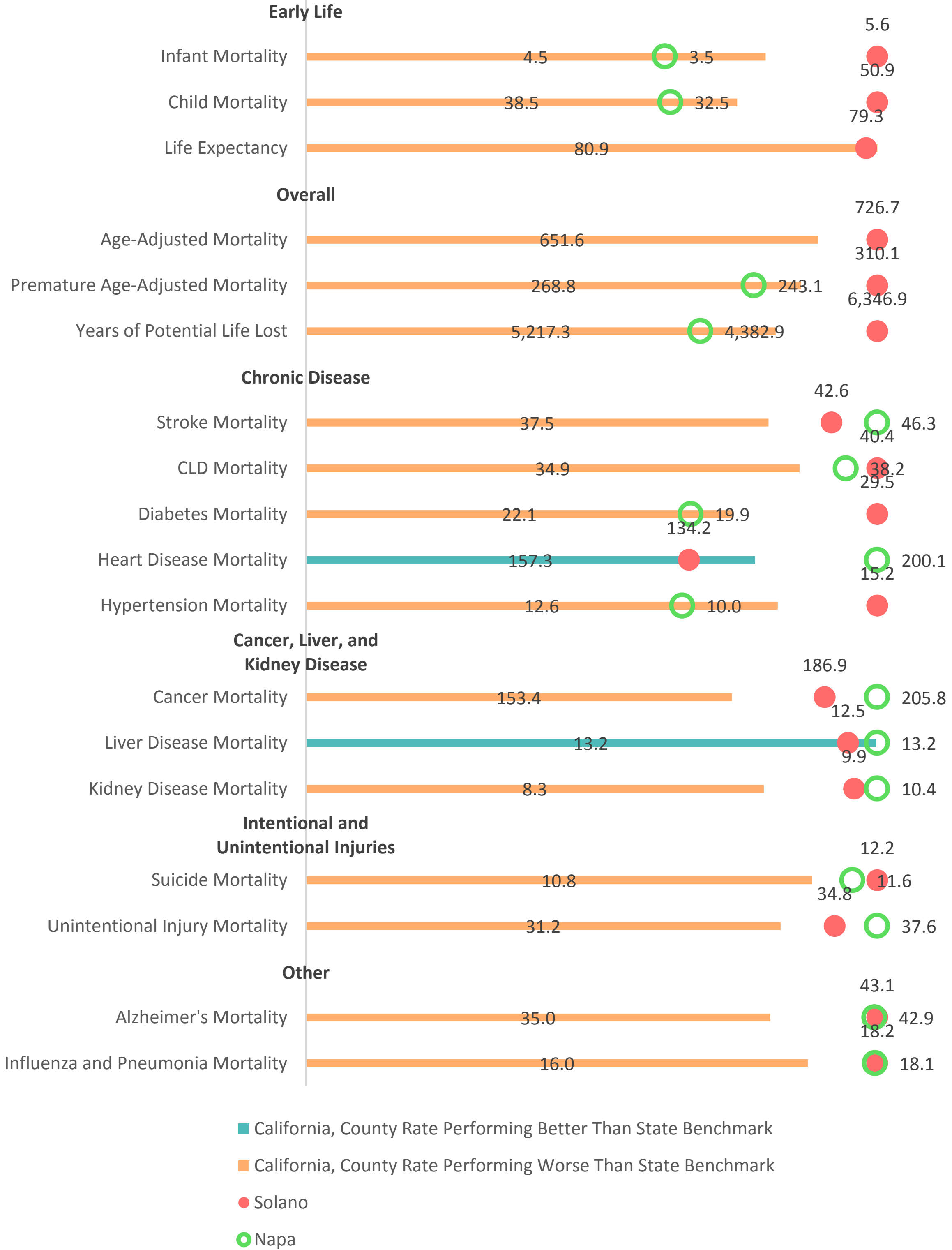

Figure 6: Length of life indicators

Quality of Life

Table 5: Quality of Life Indicators Compared to State Benchmarks

Indicators	Description	Solano County	Napa County	California
	Chronic Disease			
Diabetes Prevalence	Percentage age 20 and older with diagnosed diabetes	9.9%	8.2%	8.5%
Low Birth Weight	Percentage of live births with birthweight below 2500 grams	6.7%	5.8%	6.8%
HIV Prevalence	Persons age 13 or older with a(n) Human Immunodeficiency Virus (HIV) infection per 100,000	306.7%	238.5%	376.4%
Percentage with Disability	Percentage of total civilian noninstitutionalized population with a disability	12.1%	11.1%	10.6%
	Mental Health			
Poor Mental Health Days	Age-adjusted average number of mentally unhealthy days reported in past 30 days	3.6	3.6	3.5
Poor Physical Health Days	Age-adjusted average number of physically unhealthy days reported in past 30 days	3.4	3.4	3.5
	Cancer			
Cancer Female Breast	Age-adjusted incidence per 100,000	130.3	141.2	120.6
Cancer Colon and Rectum	Age-adjusted incidence per 100,000	38.6	36.4	37.1
Cancer Lung and Bronchus	Age-adjusted incidence per 100,000	56.1	48.5	44.6
Cancer Prostate	Age-adjusted incidence per 100,000	129.5	119.2	109.2

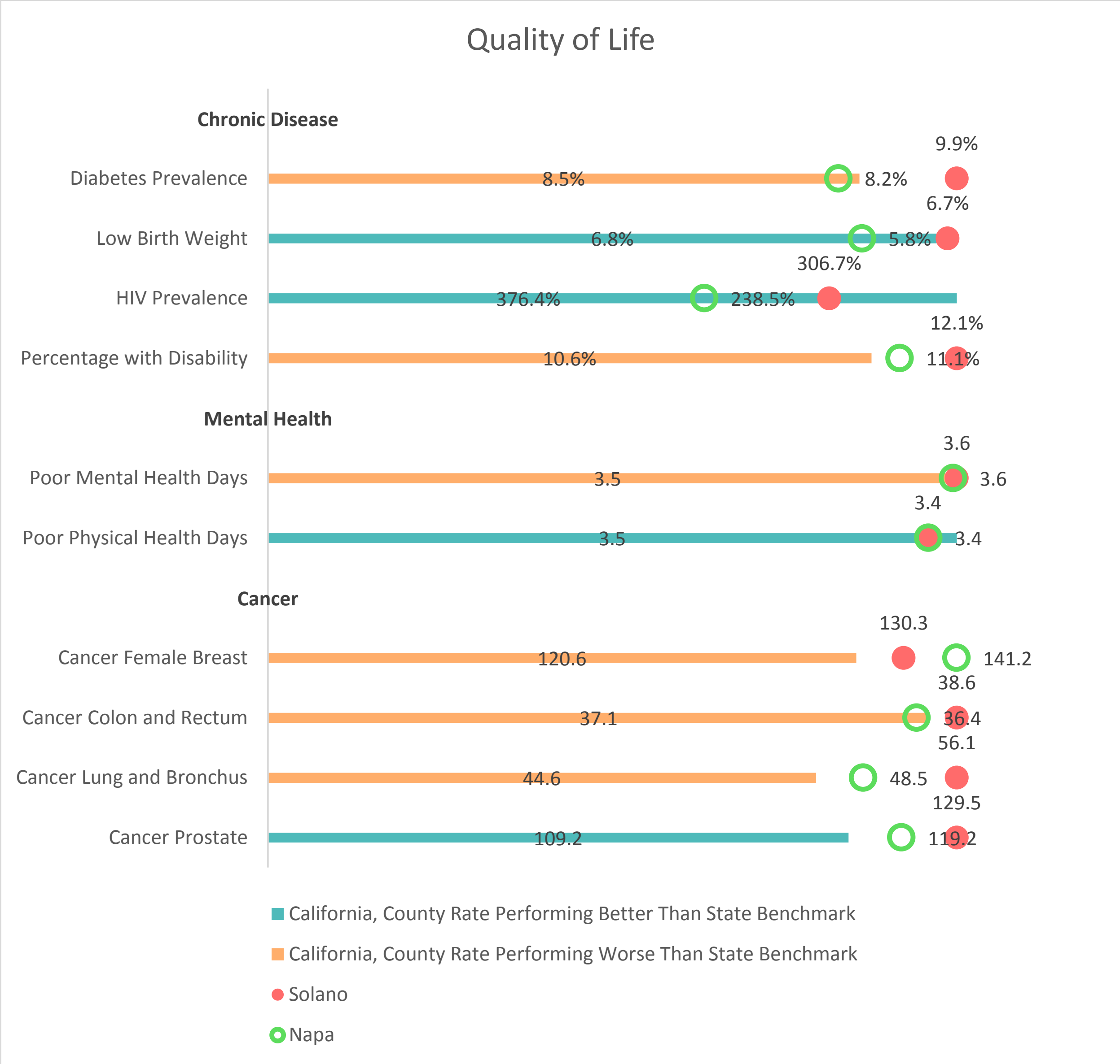

Figure 7: Quality of life indicators

Health Behaviors

Table 6: Health Behavior Indicators Compared to State Benchmarks

Indicators	Description	Solano County	Napa County	California
Excessive Drinking	Percentage of adults reporting binge or heavy drinking	18.1%	20.1%	17.8%
Drug Overdose Deaths	Age-adjusted deaths per 100,000	13.8	10.0	12.2
Adult Obesity	Percentage of adults reporting BMI of 30 or more	29.5%	23.2%	22.7%
Physical Inactivity	Percentage age 20 and older with no reported leisure-time physical activity	19.1%	16.9%	17.9%
Limited Access to Healthy Food	Percentage of population that is low income and does not live close to a grocery store	3.4%	2.3%	3.3%
mRFEI	Percentage of food outlets that are classified as 'healthy'	15.2%	20.6%	0.1%
Access to Exercise	Percentage of population with adequate access to locations for physical activity	92.7%	82.2%	89.6%
STI Chlamydia Rate	Number of newly diagnosed chlamydia cases per 100,000	550.2	309.9	487.5
Teen Birth Rate	Number of births per 1,000 females aged 15-19	21.1	17.7	24.1
Adult Smokers	Percentage of adults who are current smokers	11.8%	10.9%	11.0%

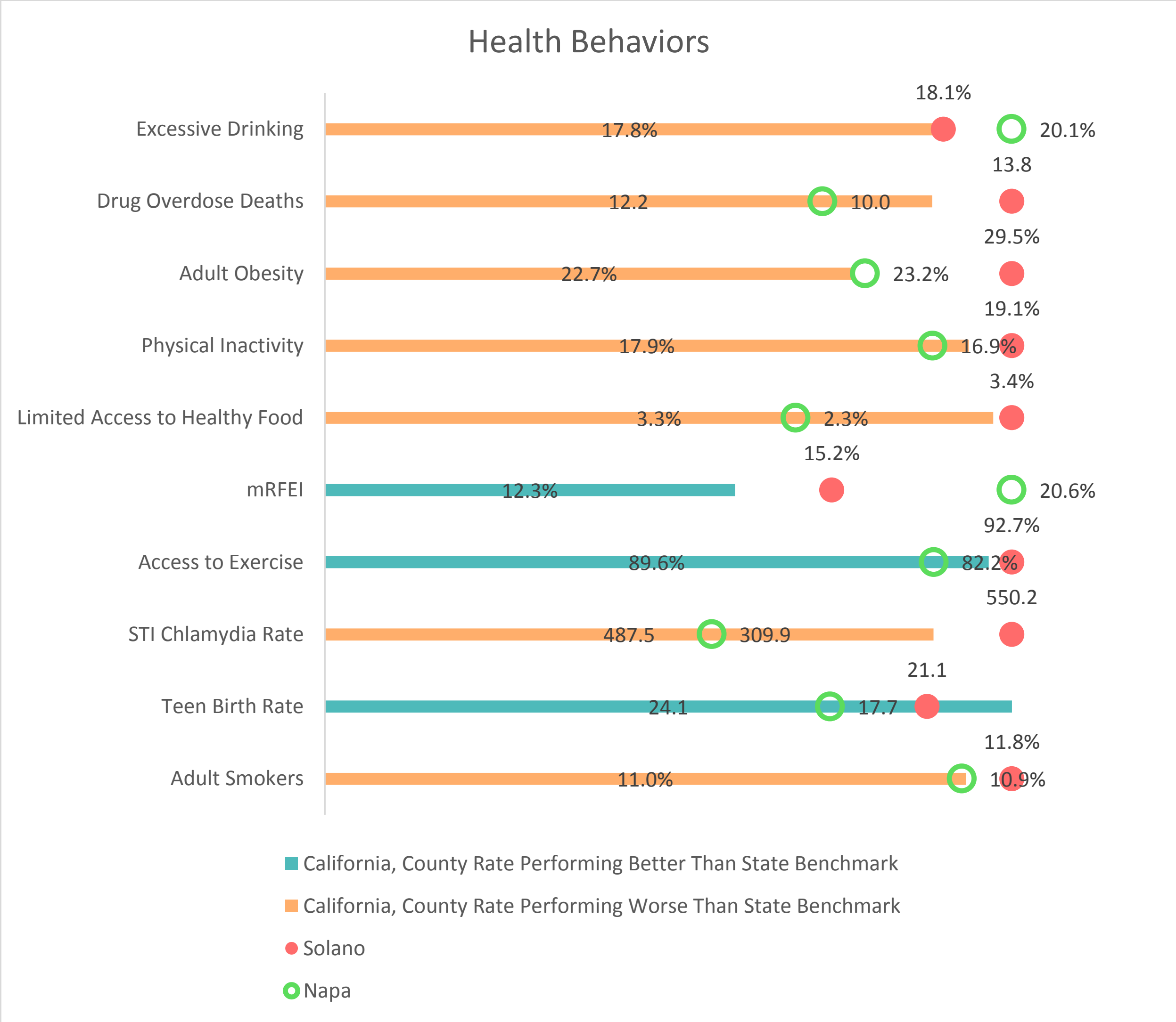

Figure 8: Health behavior indicators

Clinical Care

Table 7: Clinical Care Indicators Compared to State Benchmarks

Indicators	Description	Solano County	Napa County	California
Healthcare Costs	Amount of price-adjusted Medicare reimbursements per enrollee	$7,529	$8,028	$9,100
HPSA Dental Health	Reports if a portion of the county falls within a Health Professional Shortage Area	No	No	
HPSA Mental Health	Reports if a portion of the county falls within a Health Professional Shortage Area	No	No	
HPSA Primary Care	Reports if a portion of the county falls within a Health Professional Shortage Area	Yes	Yes	
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	49.1%	61.0%	59.7%
Dentists	Number per 100,000	92.0	84.4	82.3
Mental Health Providers	Number per 100,000	339.6	465.7	308.2
Psychiatry Providers	Number per 100,000	13.9	37.1	13.4
Specialty Care Providers	Number per 100,000	131.3	213.1	183.2
Primary Care Physicians	Number per 100,000	82.6	97.6	78.0
Preventable Hospital Stays	Number of hospital stays for ambulatory-care sensitive conditions per 1,000 Medicare enrollees	32.0	29.5	36.2

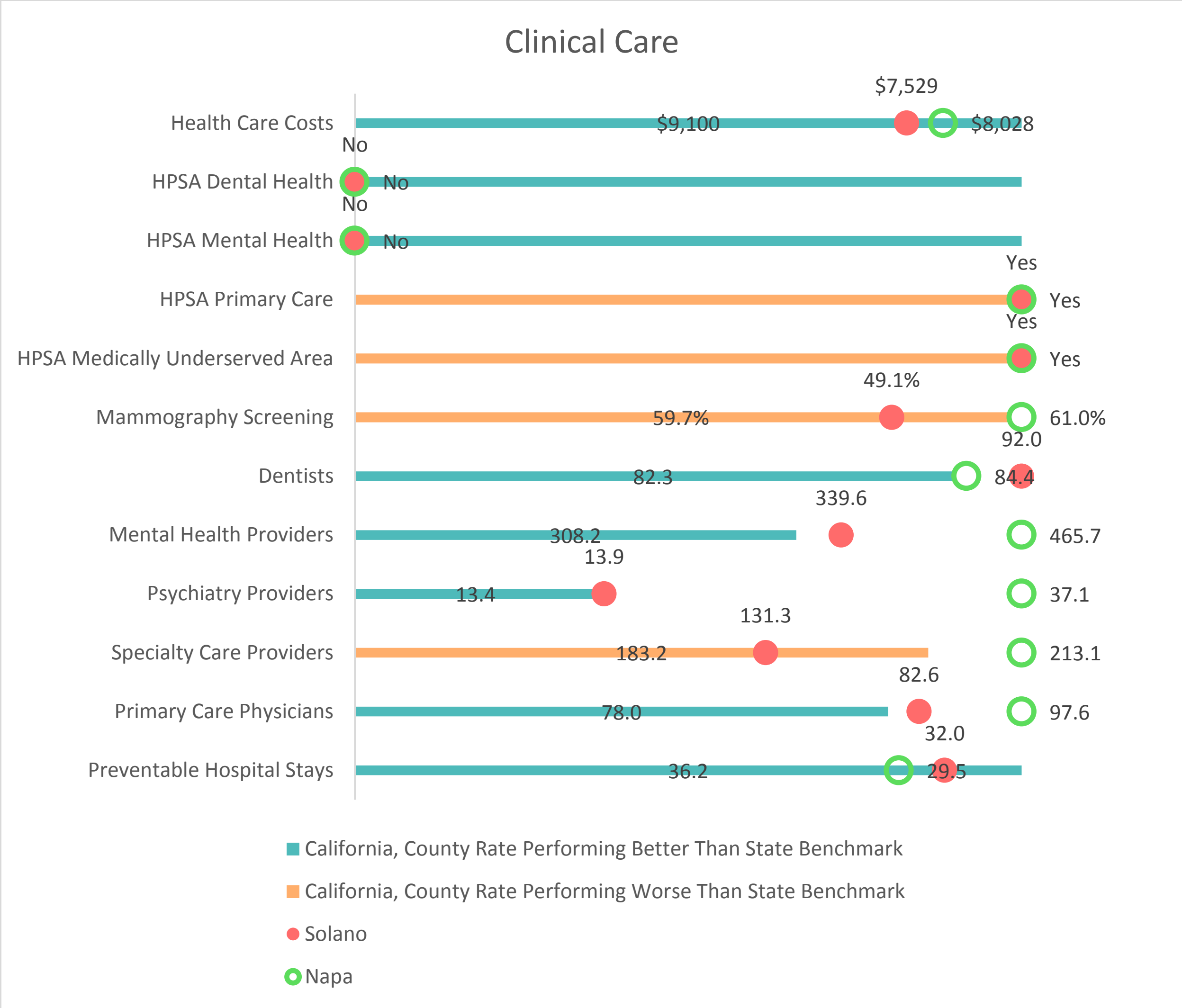

Figure 9: Clinical care indicators

Social and Economic Factors

Table 8: Social and Economic Factor Indicators Compared to State Benchmarks

Indicators	Description	Solano County	Napa County	California
Homicides	Deaths per 100,000	7.9		5.0
Violent Crimes	Reported violent crime offenses per 100,000	467.7	340.8	407.0
Motor Vehicle Crash Deaths	Deaths per 100,000	9.8	8.2	8.5
Some College	Percentage aged 25-44 with some post-secondary education	63.7%	59.7%	63.5%
High School Graduation	Percentage of ninth-grade cohort graduating high school in 4 years	84.3%	89.2%	82.3%
Unemployed	Percentage of population 16 and older unemployed but seeking work	5.5%	4.3%	5.4%
Children with Single Parents	Percentage of children living in a household headed by a single parent	36.8%	26.6%	31.8%
Social Associations	Membership associations per 100,000	5.5	8.1	5.8
Free and Reduced Lunch	Percentage of children in public schools eligible for free or reduced-price lunch	51.2%	48.1%	58.9%
Children in Poverty	Percentage of children under age 18 in poverty	16.2%	9.7%	19.9%
Median Household Income	Median household income	$73,200	$73,112	$67,715
Uninsured	Percentage of population under age 65 without health insurance	6.0%	8.5%	9.7%

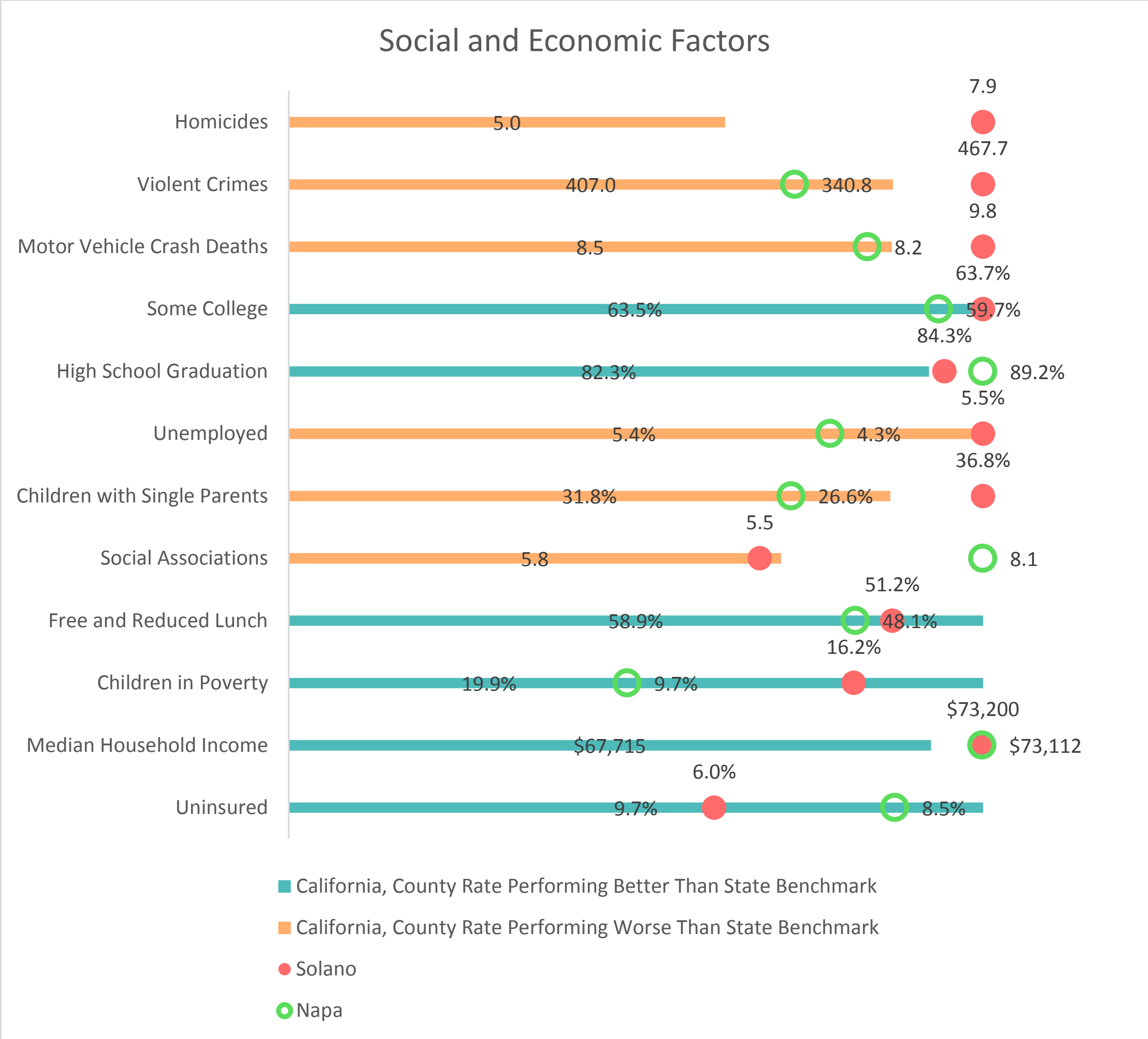

Figure 10: Social and economic factor indicators

Physical Environment

Table 9: Physical Environment Indicators Compared to State Benchmarks

Indicators	Description	Solano County	Napa County	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	22.5%	24.0%	27.9%
Housing Units with No Vehicle	Percentage of households with no vehicle available	5.7%	5.0%	7.6%
Public Transit Proximity	Percentage of population living in a Census block within a quarter of a mile to a fixed transit stop	59.9%		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	12.7%	14.6%	50.4%
Air Particulate Matter	Average daily density of fine particulate matter in micrograms per cubic meter (PM2.5)	8.5	7.5	8
Drinking Water Violations	Reports whether or not there was a health-related drinking water violation in a community within the county	No	Yes	

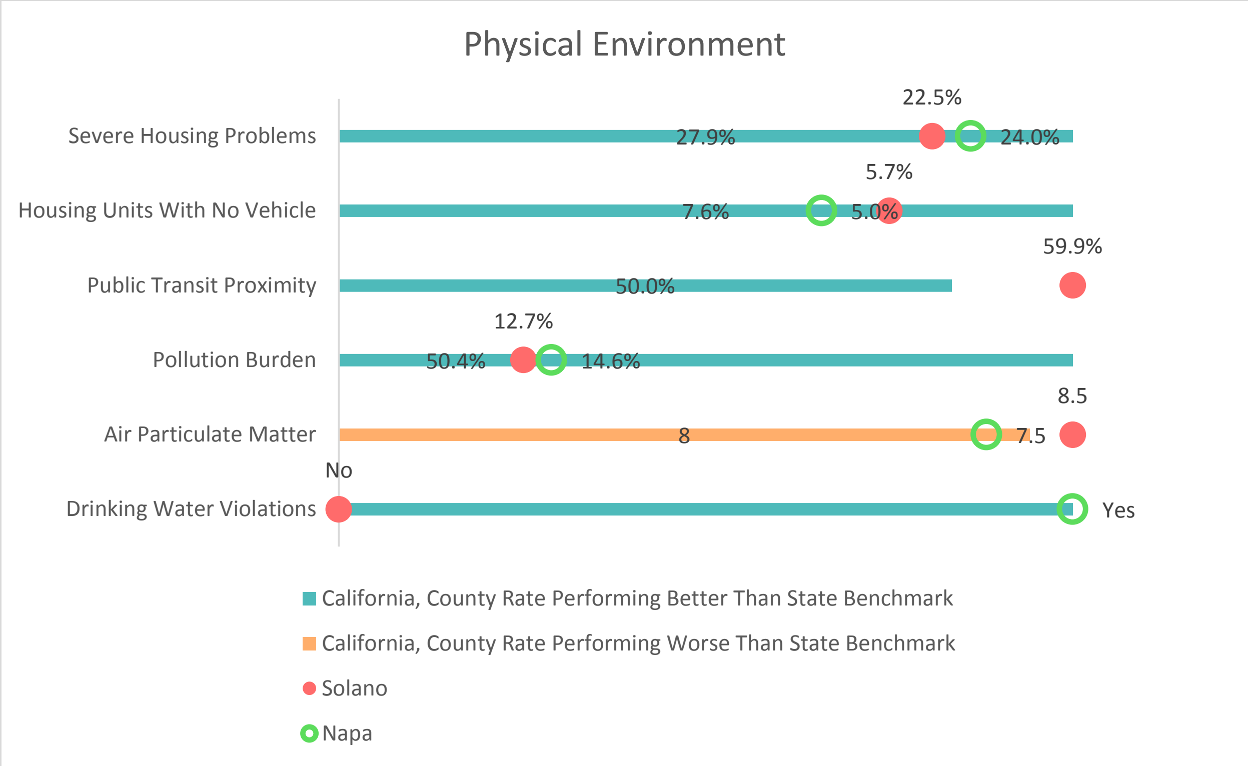

Figure 11: Physical environment indicators

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 12. 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.

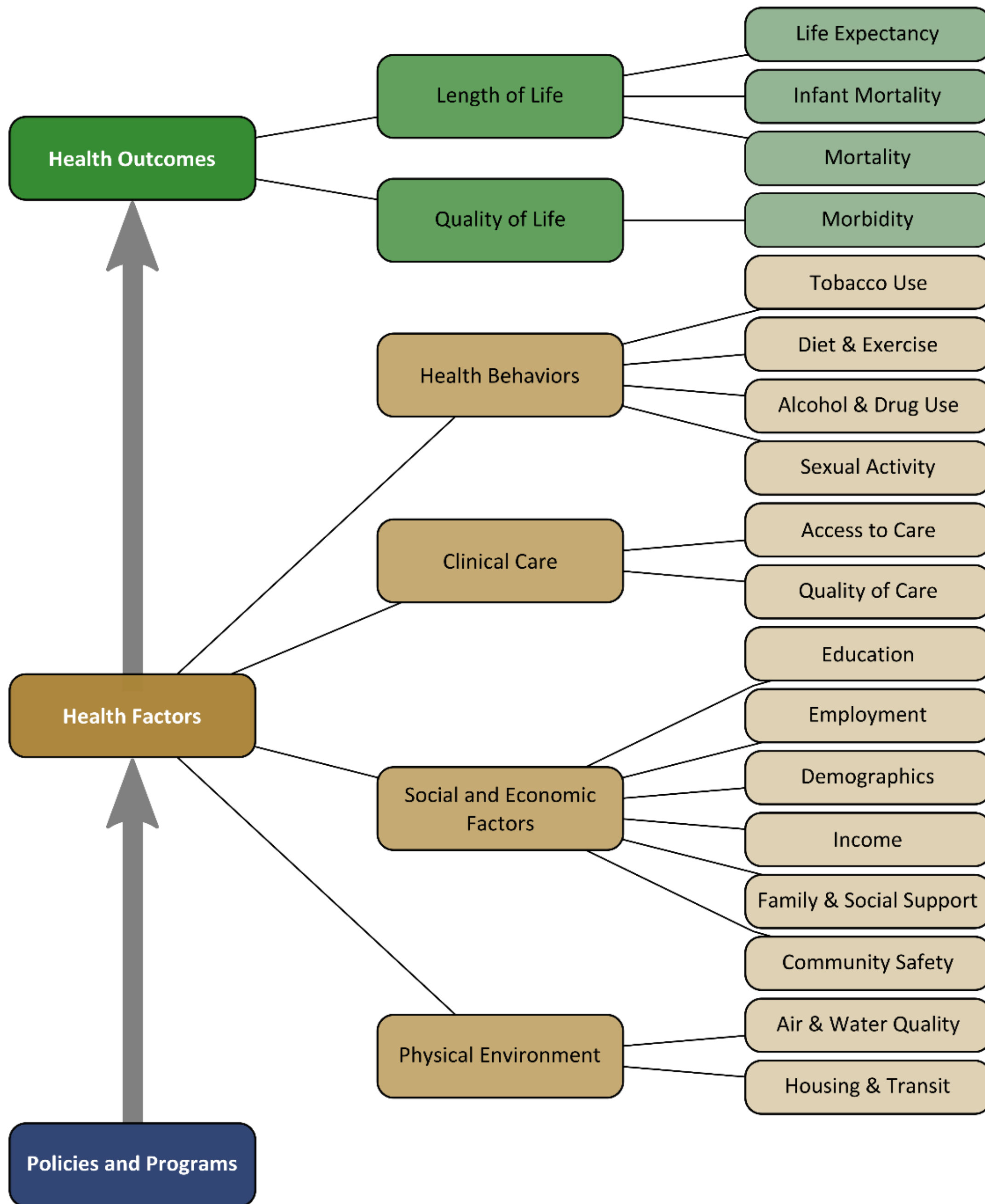

Figure 12: Community Health Assessment Conceptual Model as modified from the County Health Rankings Model, Robert Wood Johnson Foundation, and University of Wisconsin, 2015

Process Model

Figure 13 outlines the data collection and analysis stages of this process. The project began by confirming the HSA for Sutter Solano Medical Center 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.

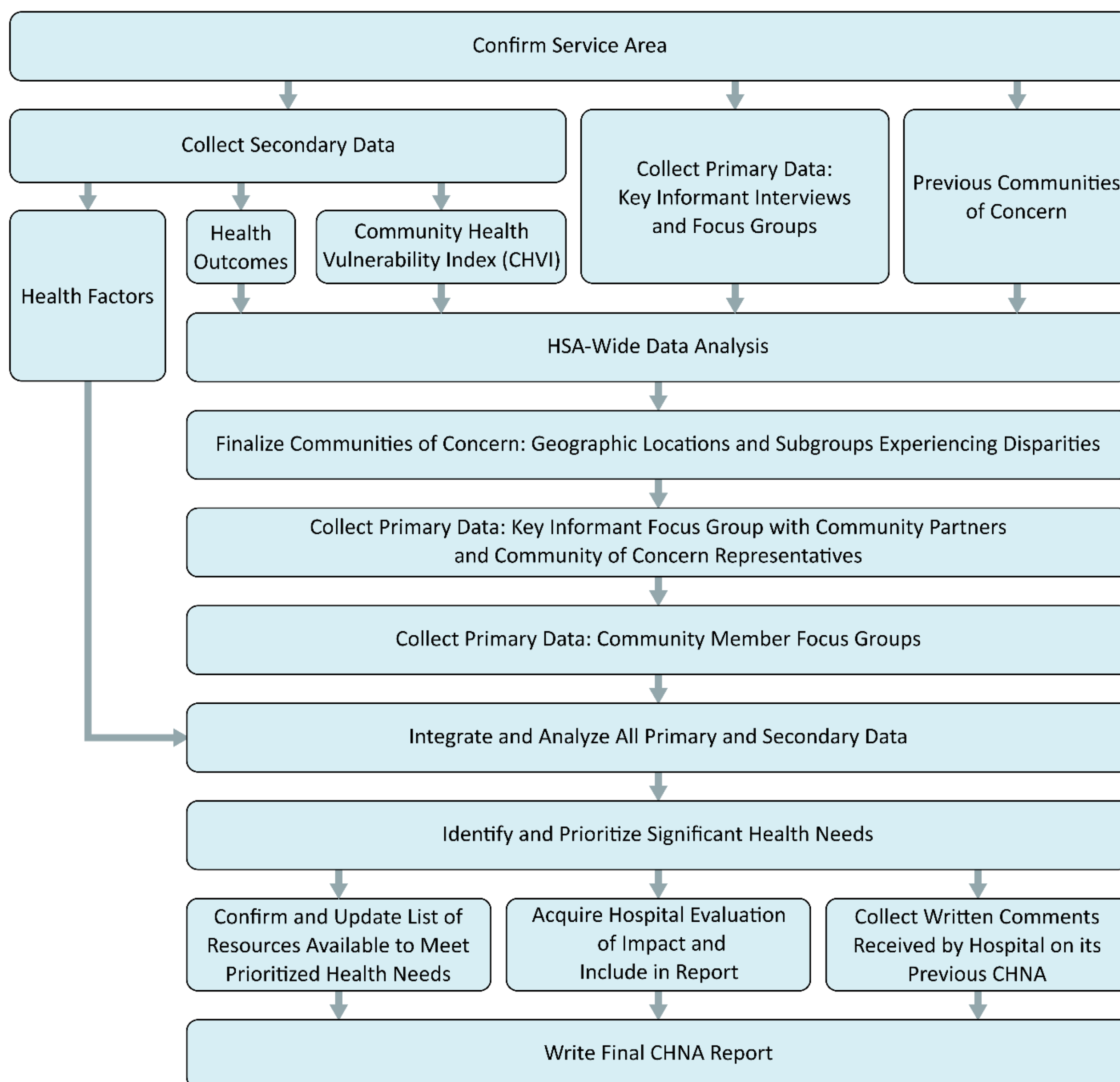

Figure 13: CHNA process model for SSMC

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 by Sutter Solano Medical Center 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 10 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 10: Key Informant List

Organization	# Participants	Area of Expertise	Populations Served	Date
Solano County Public Health	1	Public Health	Solano County	8/13/18
Solano County Health and Human Services	1	Social Services for Homeless	Homeless and low-income residents in Dixon and Rio Vista	8/21/18
Partnership Healthplan of CA	1	Healthcare Coverage	Low-income residents in Vacaville and Vallejo	8/24/18
Solano County Public Health	5	Senior Services	Solano County seniors	8/28/18

County of Napa Public Health	1	Public Heath	Napa County including American Canyon	8/29/18
First 5 Solano	7	Child Development, Family Resources	Solano County	8/30/18
Vallejo Christian Help Center	1	Homeless Shelter	Solano County and Napa	8/31/18
Solano Health and Social Services	1	Social Services	Solano County	9/7/18
The Leaven	4	Community Revitalization	Solano County	9/19/18
Vacaville Police Department	1	Law Enforcement and Community Outreach	Solano County	9/25/18
La Clinica	2	Healthcare	Vallejo	9/28/18
Fighting Back Partnership	8	Youth Service Providers	Vallejo	10/9/18
Touro University Mobile Diabetes Education Center	3	Disease Prevention and Management	Solano County	10/26/18

Key Informant Interview Guide

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

2019 CHNA Group / Key Informant Interview Protocol

1. Briefly, what is your current position and role within your organization?
2. How would you define the communities you serve and live in, as well as the population you serve?
3. What does a healthy environment look like?
4. When thinking about your community in the context of the healthy community you just described, what are the biggest health needs in the community?
5. What have been some emerging issues in the community that may influence health needs?
6. What challenges or barriers exist in the community to being healthy?
7. What are some solutions that can address the barriers and challenges that you have identified?
8. 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?
9. What are resources that exist in the community that help your community live healthy lives and address the health issues and inequity we have discussed?
10. 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 11 contains a listing of community resident 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 11: Focus Group List

Location	Date	# Participants	Demographic Information
Fighting Back Partnership	9/25/18	17	Community members – homeless and at risk for homelessness in Vallejo
Black Infant Health	9/26/18	14	Community members – low income from Vallejo
Holy Family Roman Catholic Parish	10/5/18	19	Community members – from American Canyon
Fighting Back Partnership	10/19/18	6	Community members and service providers – low income, at risk from Solano County
La Clinica Vallejo	10/24/18	8	Community members – Spanish speaking

Focus Group Interview Guide

2019 CHNA Focus Group Interview Protocol

1. Let's start by introducing ourselves.
2. What do you think that a "healthy environment" is?
3. When thinking about your community based on the healthy environment you just described, what are the biggest health needs in your community?
4. What issues are coming up lately in the community that may influence health needs?
5. What are the challenges or barriers to being healthy in your community?
6. From your perspective, what health services are difficult to access for you and the people you know in your community?
7. What are some solutions that can help solve the barriers and challenges you talked about?
8. Based on what we have discussed so far, what are currently the most important or urgent top 3 health issues or challenges to address to improve the health of the community
    a. Are these needs that have recently come up or have they been around for a long time?
    b. What do you think has changed/stayed the same in the community since 2015 that makes these priorities less/more/equally pressing?
9. What are resources that exist in the community that help your community live healthy lives and address the health issues and inequity we have discussed?
10. Are there certain groups or individuals that you think would be helpful to speak with as we go forward with our Community Health Needs Assessment?
11. 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 within Solano and Napa Counties, as well as for the counties overall, were collected from the California Department of Public Health (CDPH). The specific indicators used are listed in Table 12. 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 12: 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, 95696 is a PO Box located in Vacaville, California. ZIP Code 95696 is not represented by a ZCTA, but it could have reported patient data. Through the process identified above, it was found that 95696 is located within the 95688 ZCTA. Data for both ZIP Codes 95696 and 95688 were therefore assigned to ZCTA 95688 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 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.

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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

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.

Community Health Vulnerability Index (CHVI)

The CHVI is a health-care-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

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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

[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

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 13.

Table 13: Indicators Used to Create the Community Health Vulnerability Index

Indicator	Description	Source Data Table	Variables Included
Minority	The percentage of the population that is Hispanic or reports at least one race that is not white	B0302	HD01_VD01, HD01_VD03
Limited English	The 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
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

[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.

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 14 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 14: 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	Mortality	Alzheimer's Disease Mortality	CDPH*	2012-2016
			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
	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

Conceptual Model Alignment			Indicator	Data Source	Time Period
			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
		Quality Care	Preventable Hospital Stays (Ambulatory Care Sensitive Conditions)	CHR	2015
	Social & Economic/ Demographic Factors	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
		Employ-ment	Unemployment	CHR	2016
		Family and Social Support	Children in Single-Parent Households	CHR	2012-2016
			Social Associations	CHR	2015
		Income	Children Eligible for Free and Reduced Lunch	CHR	2015-2016
			Children in Poverty	CHR	2016
			Median Household Income	CHR	2016

Conceptual Model Alignment			Indicator	Data Source	Time Period
			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

* California Department of Public Health
** County Health Rankings
† 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 15.

Table 15: 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

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

CHR Indicator	Time Period	Original Data Provider
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
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.

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] includes 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.

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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

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

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 16.

Table 16: 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	2016 County Business Patterns
Fruit and Vegetable Markets	BP_2016_00A3	Number of Establishments	445230	All Establishments	
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.

[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

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 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 17 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 17: Transportation Agencies Used to Compile the Proximity to Public Transportation Indicator

County	Agency
Solano	SoTrans, Delta Breeze (Rio Vista), Fairfield and Suisun Transit (FAST)
Yolo	YoloBus, Unitrans
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 18 lists each of these indicators as well as their sources.

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

Table 18: 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
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

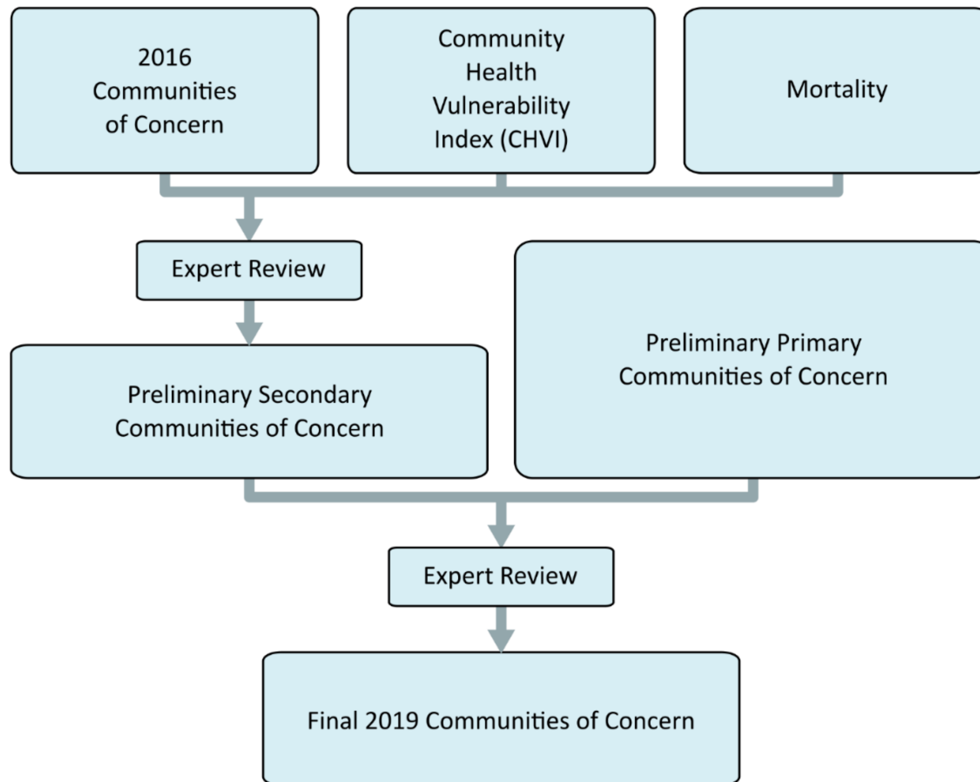

Figure 14: Process followed to identify Communities of Concern

As illustrated in Figure 14, 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 15 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 19.

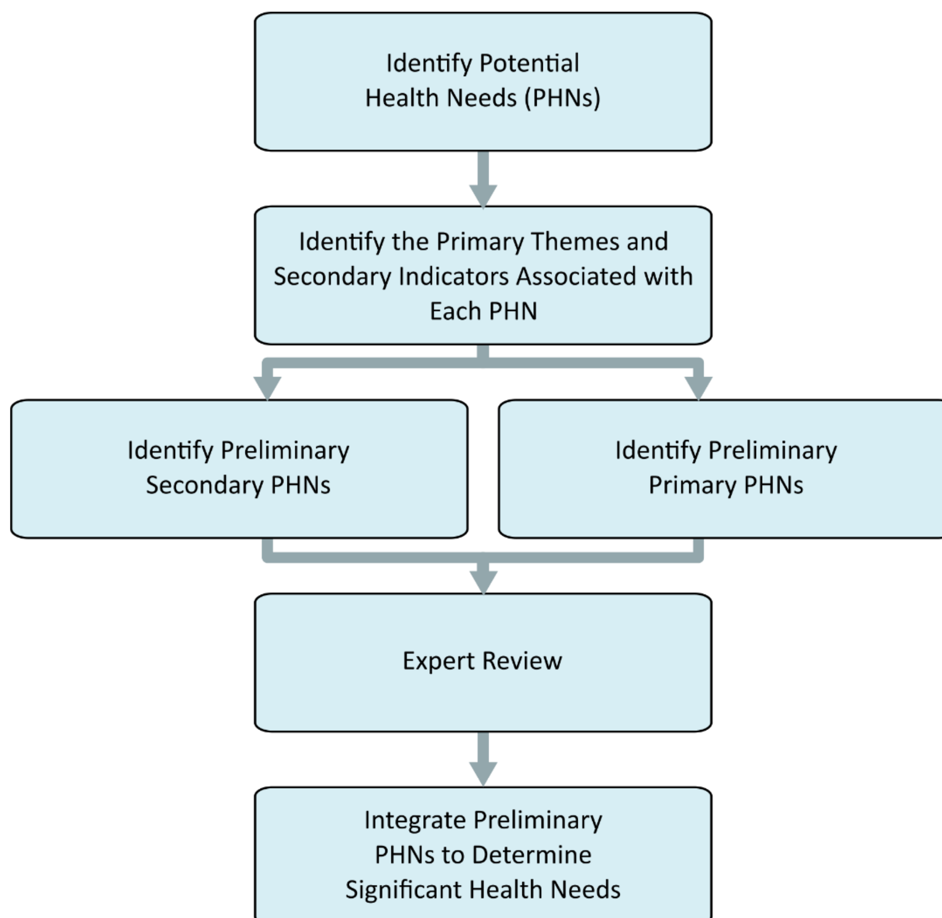

Figure 15: Process followed to identify Significant Health Needs

Table 19: 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	Injury and Disease Prevention and Management

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 20. Primary theme associations were used to guide coding of the primary data sources to specific PHNs.

Table 20: 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
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)	• Employment and Unemployment • Poverty • Housing Issues • Homelessness • Education Access • Community Quality of Life • Housing Availability • Housing Affordability

Health Need Number	2019 CHI Potential Health Needs	2019 CHI Secondary Indicators	Primary Indicators
		• 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	
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
PHN10	Injury and Disease Prevention and Management	• 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	• 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

Health Need Number	2019 CHI Potential Health Needs	2019 CHI Secondary Indicators	Primary Indicators
		• Drug Overdose Deaths • Excessive Drinking • Adult Obesity • Physical Inactivity • Sexually Transmitted Infections • Teen Birth Rate • Adult Smoking • Motor Vehicle Crash Death Rate	

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 21 lists each secondary indicator and describes the comparison made to the benchmark to determine if it was problematic.

Table 21: Benchmark Comparisons to Show Indicator Performance

Indicator	Benchmark Comparison Indicating Poor Performance
Years of Potential Life Lost	Higher
Poor Physical Health Days	Higher
Poor Mental Health Days	Higher
Low Birth Weight	Higher
Adult Smokers	Higher
Adult Obesity	Higher
Physical Inactivity	Higher
Access to Exercise	Lower
Excessive Drinking	Higher
STI Chlamydia Rate	Higher
Teen Birth Rate	Higher
Uninsured	Higher
Primary Care Physicians	Lower
Dentists	Lower
Mental Health Providers	Lower
Preventable Hospital Stays	Higher
Mammography Screening	Lower
High School Graduation	Lower
Some College	Lower
Unemployed	Higher
Children in Poverty	Higher
Children with Single Parents	Higher

Indicator	Benchmark Comparison Indicating Poor Performance
Social Associations	Lower
Violent Crimes	Higher
Air Particulate Matter	Higher
Drinking Water Violations	Present
Severe Housing Problems	Higher
Premature Age-Adjusted Mortality	Higher
Diabetes Prevalence	Higher
HIV Prevalence	Higher
Limited Access to Healthy Food	Higher
Motor Vehicle Crash Deaths	Higher
Healthcare Costs	Higher
Median Household Income	Lower
Free or Reduced Lunch	Higher
Homicides	Higher
Cancer Female Breast	Higher
Cancer Colon and Rectum	Higher
Cancer Lung and Bronchus	Higher
Cancer Prostate	Higher
Drug Overdose Deaths	Higher
HPSA Dental Health	Present
HPSA Mental Health	Present
HPSA Primary Care	Present
HPSA Medically Underserved Area	Present
mRFEI	Lower
Housing Units with No Vehicle	Higher
Specialty Care Providers	Lower
Psychiatry Providers	Lower
Cancer Mortality	Higher
Heart Disease Mortality	Higher
Unintentional Injury Mortality	Higher
CLD Mortality	Higher
Stroke Mortality	Higher
Alzheimer’s Mortality	Higher
Diabetes Mortality	Higher
Suicide Mortality	Higher
Hypertension Mortality	Higher
Influenza and Pneumonia Mortality	Higher
Kidney Disease Mortality	Higher
Liver Disease Mortality	Higher
Pollution Burden	Higher

Indicator	Benchmark Comparison Indicating Poor Performance
Public Transit Proximity	Lower
Percentage with Disability	Higher

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 60% of the associated quantitative indicators were identified as performing poorly or the need was identified by 60% 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 22: Detailed List of Resources Potentially Available to Address Significant Health Needs Identified in the CHNA

Organization Information			Significant Health Needs								
Name	ZIP Code	Website	Access to Men., Beh., Sub. Abuse Services	Access to Quality Primary Care Health	Active Living and Healthy Eating	Safe and Violence-Free Environment	Pollution-Free Living Environment	Access to Basic Needs: Housing, Jobs, Food	Access and Functional Needs	Injury, Disease Prevention & Management	Increase Community Connection
A Better Way	94533	https://www.abetterwayinc.net/	X								X
Alternative Family Services	94590	www.afs4kids.org	X					X		X	
Amador Street Hope Center	94590	http://solano.networkofcare.org/family/services/agency.aspx?pid=AmadorStreetHopeCenterAngelFoodMinistries_1202_5_0 http://vallejonazarene.com/ministries/			X			X			
ANKA Behavioral Health	Multiple Locations	http://www.ankabhi.org/index.html#.XAtTvVVKjIU	X								
ARC-Solano (Association for Retarded Citizens)	94590	http://thearcsolano.org/	X	X	X	X		X	X	X	
Baby First Solano Collaborative	94590	https://www.solanocounty.com/depts/ph/mch/programs/babyfirst_solano_collaborative.asp	X	X		X	X	X	X	X	
Benefits Action Center Solano	94590	707-784-3900, 800-400-6001; https://www.solanocounty.com/news/displaynews.asp?NewsID=40&TargetID=9	X					X			X
Benicia Community Action Council	94510	http://www.bencac.com/	X								
Born to Age	Napa and Solano Counties	https://borntoage.com/about/			X			X		X	
CACFP Day Care Home Sponsors	94534, 94535	https://www.cde.ca.gov/ds/sh/sn/cacfpsponsormap.asp						X			
CA Dept of Education: Summer Meal Sites	Multiple Locations	https://www.cde.ca.gov/ds/sh/sn/ap/summersites.asp?year=2018&countyname=Solano						X			X
Caminar, Inc.	94590	https://www.caminar.org/	X	X	X	X		X		X	X
Catholic Social Services of Solano County	94590	http://www.csssolano.org/	x		X	X		X	X	X	X

Organization Information			Significant Health Needs								
Name	ZIP Code	Website	Access to Men., Beh., Sub. Abuse Services	Access to Quality Primary Care Health	Active Living and Healthy Eating	Safe and Violence-Free Environment	Pollution-Free Living Environment	Access to Basic Needs: Housing, Jobs, Food	Access and Functional Needs	Injury, Disease Prevention & Management	Increase Community Connection
Child Start Inc.	94592, 94589, 94590	http://www.childstartinc.org/index.html		X	X	X		X		X	X
Christian Help Center	94590	https://www.christianhelpcenter.org/	X	X	X	X		X	X		
Community Action North Bay	94533	http://canbinc.org/						X			X
Faith in Action	94534	http://faithinactionsolano.org/Home_Page.html									
Fairfield Senior Day Program	94533	http://www.fairfield.ca.gov/gov/depts/cr/seniors/center.asp						X			X
Family Resource Centers	Multiple Locations	https://www.solanocounty.com/depts/fvp/community_resources/family_resource_center_(frc).asp			X			X	X		X
Fighting Back Partnership	94590	https://www.fight-back.org/	X		X	X	X	X		X	
First Baptist Church	94590	http://www.fbcvallejo.com/the-sparrow-project			X						X
Florence Douglas Center	94590	http://www.florencedouglasseniorcenter.org/			X			X			
Food Bank of Contra Costa & Solano	94533	https://www.foodbankccs.org/						X			
For A Child's H.E.A.R.T.	94591	http://www.forachildsheart.org/	X	X		X		X		X	
Genesis House	94591	http://www.genesis-house.com/	X			X				X	
Global Center for Success	94592	https://www.globalcenterforsuccess.com/	X	X		X		X		X	X
Greater Vallejo Recreation District	94590	https://www.gvrd.org/			X	X					X
The Hill Vallejo	94591	https://www.thehillvallejo.com/	X					X			
HomeBase	94102	https://www.homebaseccc.org/						X			
House of Acts	94590	https://www.houseofacts.org/	X					X		X	
Housing First Solano	94590, 94533	http://www.housingfirstsolano.org/get-help--resource-connect-solano.html						X			

Organization Information			Significant Health Needs								
Name	ZIP Code	Website	Access to Men., Beh., Sub. Abuse Services	Access to Quality Primary Care Health	Active Living and Healthy Eating	Safe and Violence-Free Environment	Pollution-Free Living Environment	Access to Basic Needs: Housing, Jobs, Food	Access and Functional Needs	Injury, Disease Prevention & Management	Increase Community Connection
Kaiser Permanente - Bethel Health Center	94591	https://jbhs-vcusd-ca.schoolloop.com/pf4/cms2/view_page?d=x&group_id=1536391165920&vdid=i19g1xgbv4k1ky	X	X				X		X	
Kaiser Permanente L.A.U.N.C.H. (High School Summer Internship Program)	94589	https://kplaunch.kaiserpermanente.org/						X		X	
Kaiser Permanente Vallejo Medical Center	94589	https://healthy.kaiserpermanente.org/northern-california/facilities/Kaiser-Permanente-Vallejo-Medical-Center-100316		X							
La Clinica de La Raza - Dental	94590	https://www.laclinica.org/vallejodental/index.html									
La Clinica de La Raza - North Vallejo	94589	https://www.laclinica.org/NorthVallejo/	X	X	X			X		X	
La Clinica de La Raza- Great Beginnings Prenatal Clinic	94589	https://www.laclinica.org/greatbeginnings/index.html	X	X				X		X	
Meals on Wheels	94585	https://www.mealsonwheelssolano.org/						X			
MedMark Treatment Centers	94590	https://medmark.com/medmark-treatment-centers-vallejo/	X			X				X	
Mission Solano	94533	https://www.missionsolano.org/						X			X
Napa County Public Health, American Canyon office	94503	https://www.countyofnapa.org/574/American-Canyon-Office		X	X			X	X	X	X
NAACP	94590	https://www.naacp.org/ local 707-554-8235						X		X	
New Dawn Vallejo	94590	http://newdawnvallejo.org/						X			
North Bay Regional Center	Throughout Solano County	https://nbrc.net/about-us/			X			X			X
Opportunity House	95688	http://opportunityhouse.us/				X		X			
Partnership HealthPlan	94534	http://www.partnershiphp.org/Pages/PHC.aspx	X	X	X			X	X		X

Organization Information			Significant Health Needs								
Name	ZIP Code	Website	Access to Men., Beh., Sub. Abuse Services	Access to Quality Primary Care Health	Active Living and Healthy Eating	Safe and Violence-Free Environment	Pollution-Free Living Environment	Access to Basic Needs: Housing, Jobs, Food	Access and Functional Needs	Injury, Disease Prevention & Management	Increase Community Connection
Rio Vista CARE	94571	http://riovistacare.org/	X								
Safe Quest Solano	94590	https://www.safequest.org/	X			X		X		X	
The Salvation Army – Community Center	94590	https://www.salvationarmyusa.org/usn/plugins/gdosCenterSearch?query=94590&mode=query_3	X		X					X	X
Second Baptist Church	94591	http://solano.networkofcare.org/mh/services/agency.aspx?pid=SecondBaptistChurchofVallejo_357_2_0			X						
Shamia Recovery Center	94590	http://solano.networkofcare.org/mh/services/agency.aspx?pid=ShamiaRecoveryCenter_357_2_0 707-644-2577	X							X	
Share the Care Napa Valley	94559	http://napavalleysharethecare.com/about-2/		X				**X**	X		
Shelter, Inc.	94520	https://shelterinc.org/						X			X
Solano ADHC (Adult Day Health Center)	94590	(707) 642-6811									X
Solano Coalition for Better Health	94533	http://solanocoalition.org/all-scbh-programs/		X	X			X			X
Solano County Black Infant Health	94533	https://www.solanocounty.com/depts/ph/mch/programs/black_infant_health_program.asp			X						
Solano County Department of Health and Social Services	94533	https://www.solanocounty.com/depts/hss/contact.asp	X	X	X	X	X	X	X	X	X
Solano County Network of Care: In Home Assistance	Throughout Solano County	http://solano.networkofcare.org/dd/services/subcategory.aspx?tax=PH-3300									X
Solano Cocunty Older & Disabled Adult Services	Throughout Solano County	https://www.solanocounty.com/depts/hss/odas/mission.asp	X	X				X		X	
Solano County Probation Center for positive change	94590	https://www.solanocounty.com/depts/probation/contact/default.asp	X								

Organization Information			Significant Health Needs								
Name	**ZIP Code**	**Website**	Access to Men., Beh., Sub. Abuse Services	Access to Quality Primary Care Health	Active Living and Healthy Eating	Safe and Violence-Free Environment	Pollution-Free Living Environment	Access to Basic Needs: Housing, Jobs, Food	Access and Functional Needs	Injury, Disease Prevention & Management	Increase Community Connection
Solano County Public Health Department	94590, 94533	http://www.solanocounty.com/depts/ph/default.asp	X	X	X	X	X	X	X	X	X
Solano County- Benicia Family Resource Center	94510	https://www.ci.benicia.ca.us/index.asp?SEC=7D71BE63-0B78-4751-B1FF-E1C7AEBB9814&DE=AB5F1A13-5FEF-4177-B9FE-DFDA87B5F3D9	X						X	X	X
Solano Family & Children's Services	Throughout Solano County	https://www.solanofamily.org/financial-help-with-child-care/									X
Solano HEALS	Throughout Solano County	http://solheals.wixsite.com/solanoheals							X		
Sparkpoint - Solano	94589	https://fight-back.org/SparkPoint-Solano						X			
Sutter Solano Medical Center	94589	https://www.sutterhealth.org/ssmc	X	X						X	
The Leaven	94533	https://www.myleaven.com/			X	X					
Touro University Student-Run Free Clinic	94590	http://www.tustudentlife.com/clubs/srfc/about/		X					X	X	
Vacaville Youth Reach Coalition	95688	https://www.ci.vacaville.ca.us/residents/vacaville-youth/vacaville-reach-youth-coalition				X					X
Vallejo Community Change Coalition (part of Fighting Back)	94590	http://fight-back.org/Vallejo-Community-Change-Coalition					X			X	X
Vallejo Health Center-Planned Parenthood	94590	https://www.plannedparenthood.org/health-center/california/vallejo/94590/vallejo-health-center-2699-90200		X						X	
Vallejo Open MRI Center	94591	https://www.radnet.com/northern-california/locations/vallejo-open-mri-center									
Vallejo People's Garden	94592	http://www.vallejopeoplesgarden.org/p/about.html			X						X

Organization Information			Significant Health Needs								
Name	ZIP Code	Website	Access to Men., Beh., Sub. Abuse Services	Access to Quality Primary Care Health	Active Living and Healthy Eating	Safe and Violence-Free Environment	Pollution-Free Living Environment	Access to Basic Needs: Housing, Jobs, Food	Access and Functional Needs	Injury, Disease Prevention & Management	Increase Community Connection
Vallejo USD- Full Service Community Schools	94592	https://vcusd-ca.schoolloop.com/pf4/cms2/view_page?d=x&group_id=1303568828204&vdid=i10e1xf0m1ll						X		X	X
Vallejo WIC Clinic	94590	https://www.solanocounty.com/depts/ph/nsp/wic/links.asp			X					X	
Workforce Development Board of Solano County	94534	http://www.solanoemployment.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 is 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.