A Community Health Needs Assessment

of the

Rideout Regional Medical Center and Sutter Surgical Hospital—North Valley Service Area

Conducted on the behalf of:

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Marysville, CA 95901

&

Sutter Surgical Hospital – North Valley
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Yuba City, CA 95991

Conducted by:

COMMUNITY HEALTH INSIGHTS

May 2016 -

Acknowledgements

We are deeply grateful to all those who contributed to the community health needs assessment conducted on behalf of Rideout Regional Medical Center and Sutter Surgical Hospital – North Valley. Many dedicated community health experts and members of various social service organizations serving the most vulnerable members of the community gave their time and expertise as key informants to help guide and inform the findings of the assessment. Many community residents also participated and volunteered their time and told us what it was like to live in the community with limited or no access to healthcare and the basic resources needed to live a healthy life. To everyone who supported this important work we extend our deepest heartfelt gratitude.

Report authored by Dale Ainsworth, PhD, Mathew C. Schmidtlein, PhD, and Heather Diaz, DrPH, MPH -

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Report Summary

Introduction

Both state and federal law 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).[1]

This report documents the processes, methods, and findings of a CHNA conducted on behalf of Rideout Regional Medical Center (RRMC) and Sutter Surgical Hospital – North Valley (SSHNV), two hospitals serving portions of both Sutter and Yuba counties in northern California. RRMC and SSHNV share the same service area and jointly conducted the assessment. RRMC is located in Marysville, California and is a part of the Rideout Health System. SSHNV is located in Yuba City, California, and is owned in partnership with physician owners and Sutter Medical Foundation. The CHNA was conducted over a period of ten months, beginning in July 2015, and concluded in May 2016. Specifically, the objective of the 2016 CHNA was to:

> *Building on the 2013 CHNA, identify and prioritize the requisites, (or basic provisions and conditions needed), for the improvement and/or maintenance of health status within a defined hospital service area (HSA), and in particular within neighborhoods and/or populations in the service area experiencing health disparities (the "Communities of Concern.")*

Marysville is located in Yuba County and Yuba City is located in Sutter County. Separated by the Feather River, the cities are located adjacent to one another and are part of the Yuba City Metropolitan Statistical Area as designated by the US Office of Management and Budget.[2] The community served by both RRMC and SSHNV, or the hospital service area (HSA), was defined by five ZIP codes noted in the table below. This area was identified as the HSA as the majority of both RRMC and SSHNV patients resided in these ZIP codes. The HSA was home to over 146,000 community residents, and was rich in diversity along a number of dimensions.

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

[2] *Metropolitan Areas in California* (n.d.). State of California Employment Development Department. Retrieved - from: http://www.labormarketinfo.edd.ca.gov/definitions/metropolitan-areas.html. -

ZIP Code	Population	Median Age	Median Income ($)	Percent Minority
95901	32,569	31.9	$40,260	44.3
95953	10,575	34.1	$45,414	62.6
95961	26,753	29.9	$46,144	46.9
95991	41,309	31.2	$42,589	51.4
95993	35,628	38.8	$64,011	49.5
Total HSA Population	**146,834**			
Sutter County	*94,787*	*34.8*	*$50,408*	*50.2*
Yuba County	72,574	*31.9*	*$44,902*	*42.1*
CA State	37,659,181	*35.4*	*$61,094*	*60.3*

(Source: US Census, 2013)

Processes and Methods

The data used to conduct the CHNA were both identified and organized using the widely recognized Robert Wood Johnson Foundation's County Health Rankings model (for a detailed data dictionary see Appendix A). This model of population health includes the many factors that impact and account for individual health and wellbeing. Further, to guide the overall process of conducting the assessment, a defined set of data collection and analytic stages were developed. These served as the roadmap for the research team as they went about the work of the CHNA (for a detailed description of the processes followed in conducting the CHNA see Appendix B).

Data collected and analyzed included both primary or qualitative data, and secondary or quantitative data. Primary data included 10 interviews with 18 total community heath experts as well as six focus groups conducted with 53 community residents (see Appendices F and G). Secondary data included health outcome and health factor indicators. Health outcome indicators included measures of both mortality and morbidity such as mortality rates, and emergency department visit and hospitalization rates. Health factor indicators included measures of 1) health behaviors such as diet and exercise, tobacco, alcohol, and drug use; 2) clinical care including access and quality of care; 3) social and economic factors such as race/ethnicity, income, educational attainment, employment, and similar; and 4) the physical environment measures such as air and water quality, housing stability, and transit and mobility resources. In all, 114 different health outcome and factor indicators were collected for each of the five ZIP codes included in the assessment.

Data were analyzed to identify Communities of Concern within the HSA. These are defined geographic areas and populations within the HSA 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 were important to the overall CHNA methodology because, after assessing the HSA more broadly, they allowed for a focus on those portions of the HSA likely experiencing the greatest health disparities.

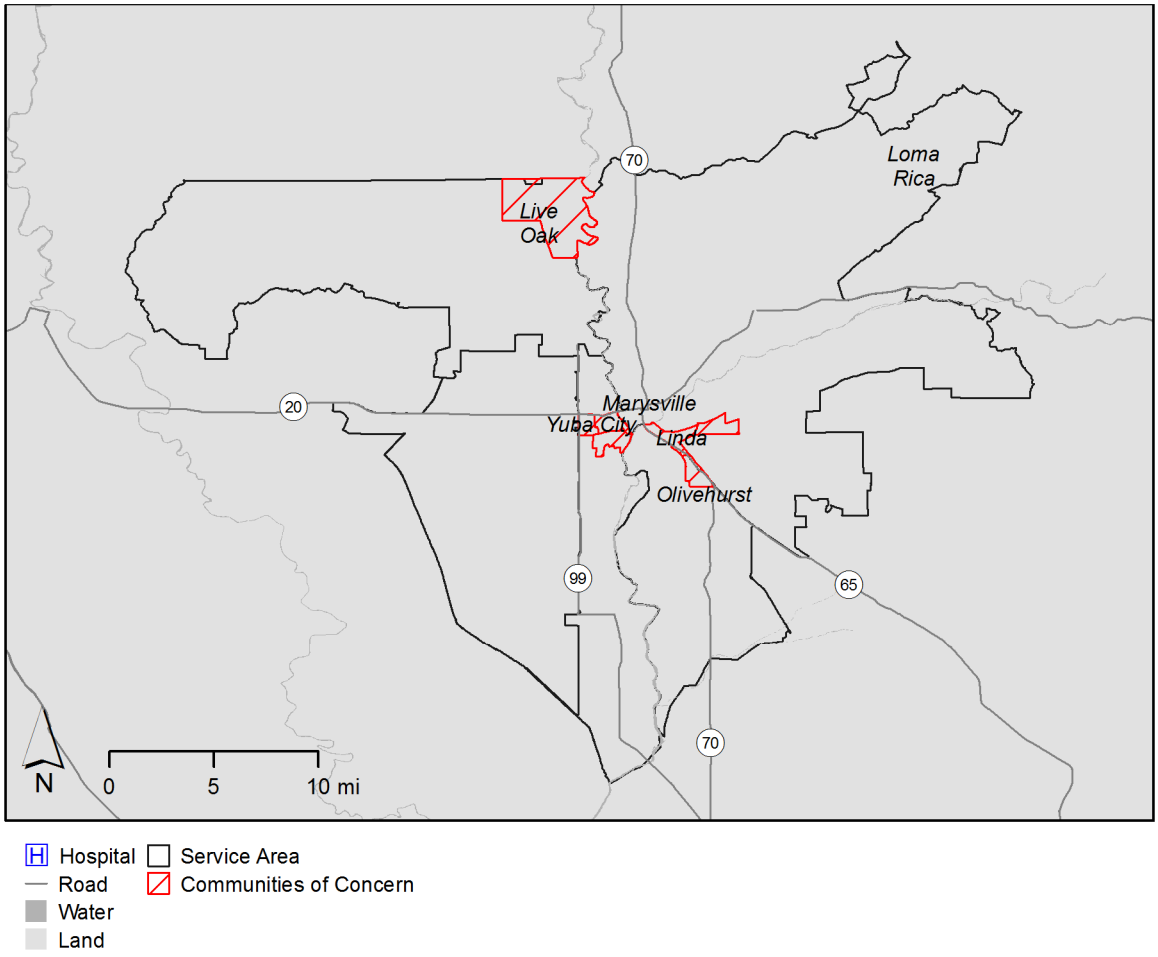
Findings

Analysis of both primary and secondary data revealed four communities that met the criteria for classification as a Community of Concern. These are noted in the table below, with the census population provided for each. These are also described in the following figure.

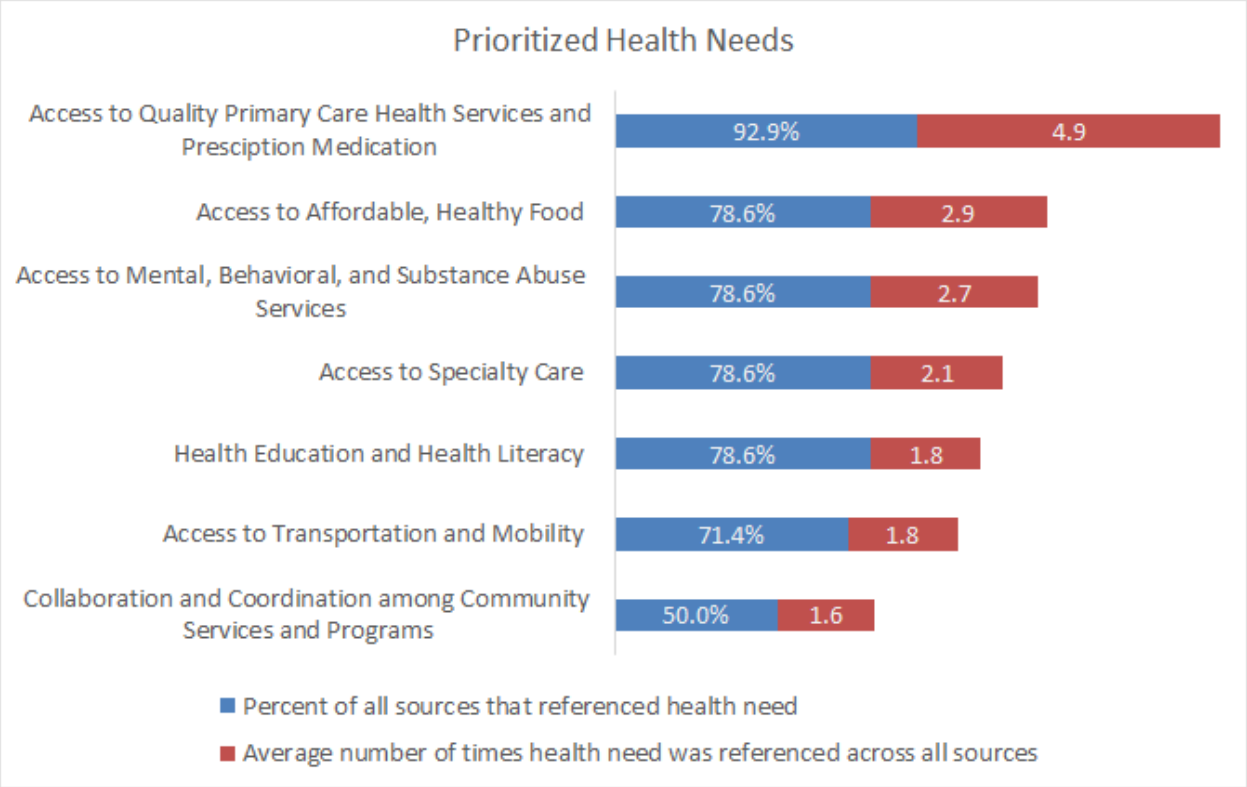
ZIP Code	Community/Area*	Population
95901	Linda	32,569
95953	Live Oak	10,575
95961	Olivehurst	26,753
95991	Yuba City	41,309
Total Population Communities of Concern		111,206
Total Hospital Service Area Population		*146,834*
CC Population as a Percent of Total HSA Population		*75.7%*

(Source: US Census, 2013) -

*ZIP code and community area name is approximate here and throughout the report. -



Primary and secondary data were also analyzed to identify and prioritize the significant health needs within the Communities of Concern. This included identifying 10 potential health needs (PHNs) that could be identified in these communities. These potential health needs were those identified in the previously conducted CHNAs (conducted in 2013). Data were analyzed to discover which, if any, of the PHNs were present in the Communities of Concern. In all, six of the 10 PHNs were identified as significant health needs. After these were identified, they were prioritized based on an analysis of primary data sources that discussed or referenced the potential health need as a significant health need. These are displayed in the figure below. The length of the bar denotes prioritization. In the figure, the blue portion of the bar notes how many primary data sources referenced the PHN as a current, significant health need. This was combined with the average number of times that each potential health need was referenced among all primary data sources, and is shown in the red portion of the bar. Further, based on the analysis of primary data only, a seventh health need was identified and added to the final list of prioritized health needs.



The identified significant health needs for the Communities of Concern are listed below in prioritized order. Secondary data indicators that had undesirable rates in any of Communities of Concern are listed in the table below each significant health need. Qualitative themes that emerged during analysis are also provided in the table.

1. Access to Quality Primary Care Health Services and Prescription Drugs

The highest priority significant health need for the Communities of Concern was access to quality primary care health services and prescriptions drugs. 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
• Health Professional Shortage Area – Primary Care • ~~Total hospitalization rates~~ • Uninsured rates	• Limited number of services for low income populations • Shortage of primary care physicians • Lack of health insurance and costs associated with getting care • Limited access to care imposed by certain types of health insurance • High deductible insurance plans • High costs of prescription drugs • Limited time with provider in exam room • Low reimbursement rates of certain health insurance plans

2. Access to Affordable, Healthy Food

The second highest priority significant health need was access to affordable, healthy foods. Eating a healthy diet is important for one's overall health and well-being. 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 often are overloaded with fast food and other establishments where unhealthy food is sold.

Quantitative Indicators	Qualitative Themes
• USDA Federally Designated Food Desert • Modified Retail Food Environment Index • Emergency department visits and hospitalizations due to diabetes • Hospitalizations and mortality due to heart disease • Hospitalizations and mortality due to hypertension • Hospitalizations due to nephritis, nephrotic syndrome, and nephrosis • Mortality due to stroke	• Costs of healthier foods • Abundant fast food outlets • Lack of education in making healthy food choices • Food deserts and lack of fresh food outlets • Food insecurity for low income populations

3. Access to Mental, Behavioral, and Substance Abuse Services

The third highest priority significant health need was 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 also occur. Adequate access to mental, behavioral, and substance abuse services help community members to obtain additional support when needed.

Quantitative Indicators	Qualitative Themes
• Health Professional Shortage Area – Mental Health • Emergency department visits and hospitalizations due to self-inflicted injury/suicide • Hospitalization due to mental health issues	• Stress of living in a low income situation • Traumatic childhood experiences untreated that become chronic mental health issues • Stress of seasonal work in agriculture • Lack of mental and behavioral health services available • Costs of mental and behavioral health services inhibits one from seeking services • Stigma associated with mental health issues as a barrier for seeking treatment • Drug, tobacco, and alcohol addiction as a means of self-medication • Limited number of drug rehabilitation services in community

4. Access to Specialty Care

The fourth highest priority significant health need for RRMC/SSHNV Communities of Concern was access to specialty care. Specialty care services are those devoted to a particular branch of medicine and focus on the treatment of a particular disease. Primary and specialty care go hand-in-hand, and without access to specialists such as endocrinologists, cardiologists, and gastroenterologists community residents are often left to manage chronic diseases such as diabetes and high blood pressure on their own.

Quantitative Indicators	Qualitative Themes
• Hospitalizations due to diabetes • Hospitalizations and mortality due to heart disease • Hospitalizations and mortality due to hypertension • Hospitalizations due to nephritis, nephrotic syndrome, and nephrosis • Hospitalizations due to stroke	• Long wait times to see specialists • High costs of accessing specialty care • Limited number of specialists treating the community • Having to travel out of the area to find specialists • Specialists not taking certain types of insurance

5. Access to Health Education and Health Literacy

The fifth highest priority significant health need for the HSA was access to health education and health literacy. Knowledge is important for individual health and well-being, and health education interventions are powerful tools 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. Health education around infectious disease control (e.g. STI prevention, influenza shots) and intensive health promotion and education strategies around the management of chronic diseases (e.g. diabetes, hypertension, obesity, and heart disease) are important for community health improvement.

Quantitative Indicators	Qualitative Themes
• Emergency department visits and hospitalizations due to diabetes • Hospitalizations and mortality due to heart disease • Hospitalizations and mortality due to hypertension • Hospitalizations due to NEP • Mortality due to stroke • Hospitalizations due to unintentional injury • Current smoking rates • Teen pregnancy rates	• Lack of education in proper diet and nutrition practices • Lack of education in prevention and healthy lifestyle choices • Teen pregnancy • Poor health literacy and knowledge passed down to younger generations • Social norms reinforcing poor health behaviors • Lack of understanding of how to access services • Lack of knowledge of services that are available • Community members not understanding the importance of physical activity

6. Access to Transportation and Mobility

The sixth highest priority significant health need for RRMC/SSHNV Communities of Concern was access to transportation and mobility. Having access to transportation services to support individual mobility is a necessity of daily life. Without transportation, individuals struggle to attain their basic needs, including those that promote and support a healthy life.

Quantitative Indicators	Qualitative Themes
• Percent of households without vehicle	• Dangers of pedestrian traffic on rural streets and highways • Limited sidewalks on many streets; low walkability • Difficulty in using public transportation to seek healthcare • Limited amount of bike paths • Challenges of using public transportation in heat of summer • Challenges of using limited transportation services with young children

7. Additional Identified Health Need – Collaboration and Coordination among Community Services and Programs

When community health needs are viewed from a requisite perspective, or those things required to improve the health of the community, the idea that enhanced collaboration and coordination among organizations, programs, and services would lead to better health outcomes for community residents appears logical. All but one key informant identified this as a priority health need for the RRMC/SSHNV HSA. Though no quantitative indicators were used in this assessment to measure the degree of collaboration among community services, the qualitative themes that emerged are noted below.

Quantitative Indicators	Qualitative Themes
• None used in this assessment	• Implementing and adopting electronic health records that follow the patient • Developing a community-wide vision for community health • Improving coordination of care among multiple providers and services serving the same patient • Developing political will throughout the community to promote health • Enhancing partnerships to address key health issues in the community • Working across silos of multiple programs and services • Sharing best practices and competencies among service providers • Moving from a competitive mindset to partnerships • Enhanced coordination between hospitals, public health, primary, and behavioral healthcare

Limitations

Study limitations included challenges obtaining secondary data and assuring community representation via primary data collection. Most data used in this assessment were not available by race/ethnicity. In addition, data on behavioral issues and conditions like obesity were both difficult to obtain at the sub-county level and were not available by race and ethnicity; therefore, county rates were used. Data timeliness was also a challenge, because some data represent different years. However, these are clearly noted to allow for proper data comparison.

Conclusion

Nonprofit hospitals play a vital role in the communities they serve. In addition to 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. CHNAs play an important role in helping nonprofit hospitals, as well as other community organizations, determine where to focus community benefit and improvement efforts, including geographic locations and specific populations living in their service areas.

Introduction

Both state and federal law (California SB697 and The Patient Protection and Affordable Healthcare Act of 2010 (ACA) require nonprofit hospitals to conduct community health needs assessment (CHNA) every three years. These assessments identify and prioritize the significant health needs of the communities served by hospitals. Based on the results, nonprofit hospitals develop implementation plans to address particular, significant health needs. Specifically, the ACA requires that nonprofit hospitals:

- Define the community they serve
- Assess the health needs of the community, taking into account input from persons representing the broad interests of the community, including those with expertise in public health
- Identify and prioritize significant health needs
- Identify resources within each community available to meet health needs
- Evaluate the impact of actions taken by the hospital since its previous CHNA
- Document the CHNA and make it widely available to the public

The Department of Treasury, Internal Revenue Service, issued final regulations effective December 29, 2014, that specify the requirements regarding nonprofit or charitable hospitals conducting a CHNA. These regulations define a health need accordingly: "…health needs include requisites for the improvement or maintenance of health status in both the community at large and in particular parts of the community (such as particular neighborhoods or populations experiencing health disparities)".[3] The proposed regulations go on to describe requisites for the improvement or maintenance of health status, and indicate that these include "…not only the need to address financial and other barriers to care but also the need to prevent illness, to ensure adequate nutrition, or to address social, behavior, and environment factors that influence health in the community" (p. 78963). Further, the final regulations specify that nonprofit hospitals may build upon a previously conducted CHNA, rather than create a new CHNA every three years.

This report documents the processes, methods, and findings of a CHNA conducted on behalf of Rideout Regional Medical Center (RRMC) and Sutter Surgical Hospital – North Valley (SSHNV), two hospitals serving portions of both Sutter and Yuba Counties in northern California. RRMC and SSHNV share the same service area and jointly conducted the assessment. RRMC is located in Marysville, California and is a part of the Rideout Health System. SSHNV is located in Yuba City, California, and is owned in partnership with physician owners and Sutter Medical Foundation. The CHNA was conducted over a period of ten months, beginning in July 2015, and concluded in May 2016. Specifically, the objective of the 2016 CHNA was to:

> *Building on the 2013 CHNA, identify and prioritize the requisites, (or basic provisions and conditions needed), for the improvement and/or maintenance of health status within a defined hospital service area, and in particular within neighborhoods and/or populations in the service area experiencing health disparities (the "communities of concern.")*

From this objective, the following questions were used to guide the 2016 CHNA:

1. - Where are the "Communities of Concern" for the hospital service area?

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

2. - What is the current health status of these communities?
3. - Who within the community (subgroups) is/are experiencing disparities?
4. - What factors are contributing to the health status of those experiencing disparities?
5. - What are the potential resources (programs, organizations, and facilities) available in the community to address health needs?
6. - What are the significant health needs, and the priorities among these, for the community served by the hospital, and specifically the "Communities of Concern"?
7. - What is required (the requisites) to improve and/or maintain the health status of residents within these communities?
8. - What is the impact of actions taken since the last CHNA?

Community Health Insights (www.communityhealthinsights.com) conducted the CHNA on the behalf of the RRMC and SSHNV. Community Health Insights is a Sacramento-based, research-oriented consulting firm dedicated to improving the health and well-being of communities across northern California. Collectively, the managing partners of Community Health Insights have conducted multiple CHNAs over the previous nine years.

Organization of this Report

Following federal guidelines, this CHNA, is organized accordingly: First, the community served by RRMC and SSHNV and how the community was identified is described. Second, the methods used to conduct the CHNA are described, including the process of collecting and analyzing data, and an identification of all parties who collaborated on the assessment is provided. Third, the process of soliciting and consideration of input from persons representing the broad interests of the community served follows. Also included is a summary of the input received, the time period in which it was received, and a listing of organizations providing input, including the populations represented by the organization. Fourth, the prioritized listing of significant health needs identified through the CHNA is described, along with a description of the process and criteria used in identifying and prioritizing these needs. Fifth, both health outcome and health factor indicators are reviewed in detail for specific areas of the hospital service area (HSA). Resources potentially available to meet the needs are identified and described, followed by a summary of the impact of actions taken by RRMC and SSHNV to address significant health needs identified in its previous CHNA, which was conducted in 2013.

Definition of the Community Served by Ridout Regional Medical Center and Sutter Surgical Hospital – North Valley

RRMC is located in Marysville, CA, and SSHNV is located in Yuba City, CA. Separated by the Feather River, these cities are located adjacent to one another and are part of the Yuba City Metropolitan Statistical Area as designated by the US Office of Management and Budget,[4] which is located approximately 40 miles due north of California's capital—Sacramento. The community served by both RRMC and SSHNV, or the HSA, was defined by five ZIP codes noted in Table 1. This area was identified as the majority of both RRMC and SSHNV's patients resided in these ZIP codes. The HSA was home to over 146,000 community residents, and encompassed portions of both Sutter and Yuba Counties. The rural community was rich in diversity along a number of dimensions.

[4] Metropolitan Areas in California (n.d.). State of California Employment Development Department. Retrieved from: http://www.labormarketinfo.edd.ca.gov/definitions/metropolitan-areas.html.

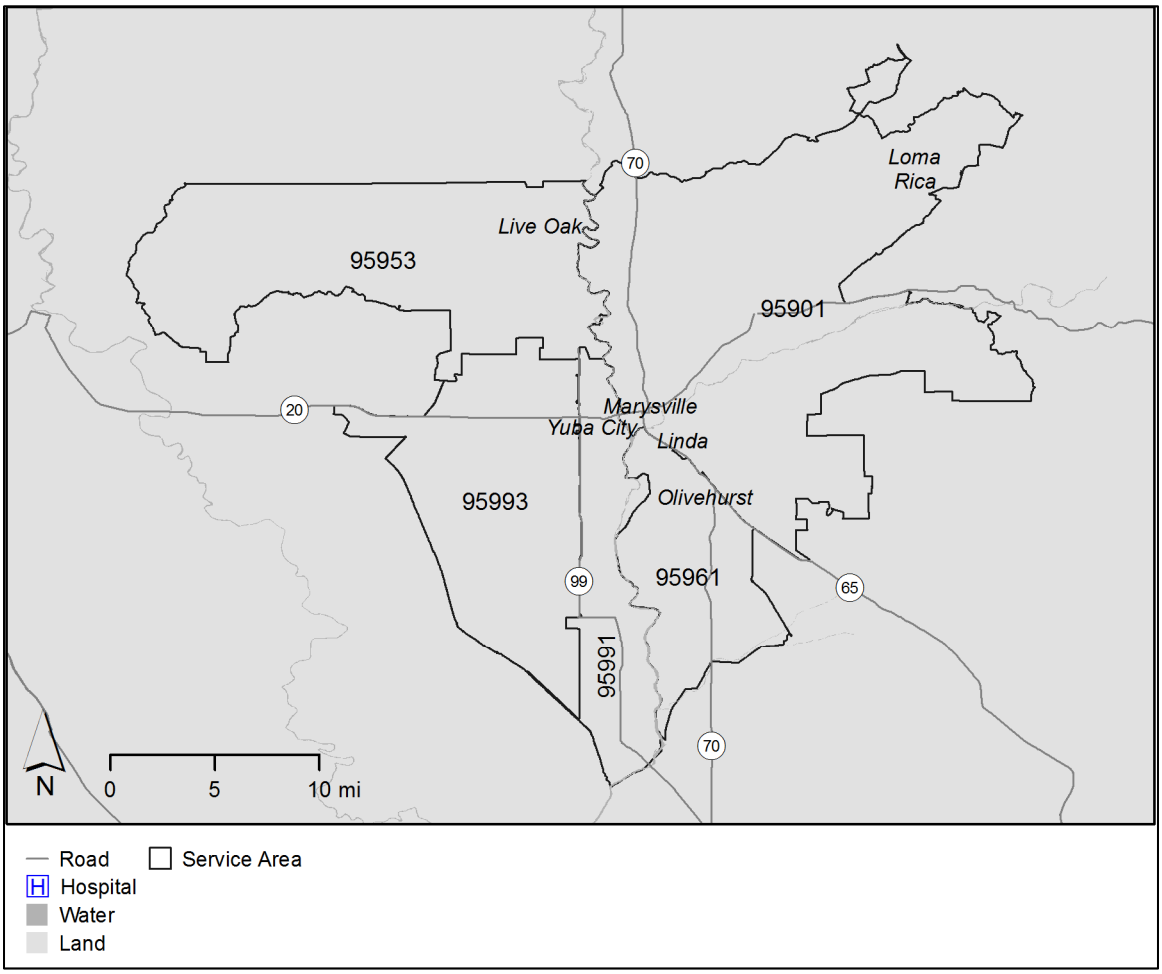


Figure 1: RRMC/SSHNV HSA

General Overview of Community

Population characteristics for each ZIP code that comprised the HSA are presented in Table 1.

Table 1: Population, median age, median income, and percent minority for each ZIP code in the RRMC/SSHNV HSA

ZIP Code	County	Population	Median Age	Median Income ($)	Percent Minority
95901	Yuba	32,569	31.9	$40,260	44.3
95953	Sutter	10,575	34.1	$45,414	62.6
95961	Yuba	26,753	29.9	$46,144	46.9
95991	Sutter	41,309	31.2	$42,589	51.4
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Total HSA Population	**146,834**				
Sutter County		*94,787*	*34.8*	*$50,408*	*50.2*
Yuba County		72,574	*31.9*	*$44,902*	*42.1*
CA State		37,659,181	*35.4*	*$61,094*	*60.3*

(Source: US Census, 2013)

The HSA was home to over 146,000 residents. Median age varied from a low of 29.9 years for ZIP code 95961 to a high of 38.8 for ZIP code 95993. Median income ranged from $40,260 for ZIP code 95901, to $64,011 for 95993. Further, the percent minority population ranged from 44.3% for ZIP code 95901, to 62.6% for ZIP code 95953.

The RRMC/SSHNV HSA covered a rural community. Unlike urban communities, the geographic area included in the HSA had a relatively low population density. HSA residents lived in concentrated areas within the ZIP codes that comprised the HSA. Figure 2 displays a population density map (or people per square mile) that demonstrates the distribution of populations across the HSA, and within each ZIP code.

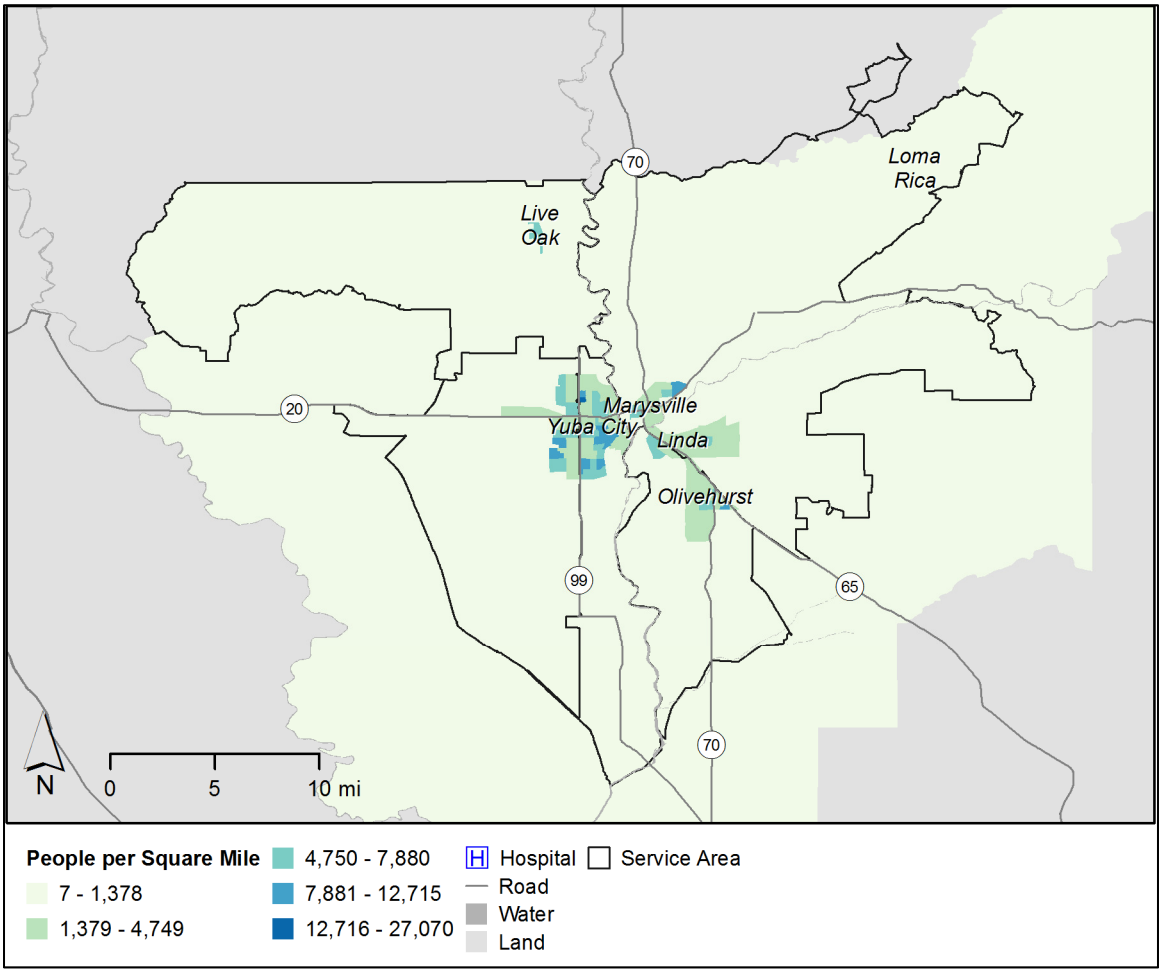

Figure 2: Population density map for the RRMC/SSHNV HSA

Figure 2 shows the concentration of populations resided in a cluster within the cities of Linda, Marysville, Olivehurst, and Yuba City. Live Oak, situated due north of Yuba City, sits in relative isolation compared to the Yuba City Metropolitan Statistical Area. Much of the geographic area within the ZIP code definitions of the HSA is farmland, and not inhabited by community residents. This fact becomes important when ZIP code level data are discussed later in the report.

The HSA was rich in racial and ethnic diversity as well. Further examination of racial and ethnic diversity in the HSA is examined in Figure 3. Areas with index values closer to one (1) indicate a

population more evenly divided between race and ethnic groups. In the figure, census tracts within each ZIP code in the HSA are highlighted to show different values of the diversity index. Darker colored census tracts had a higher diversity index, indicating more diverse populations.

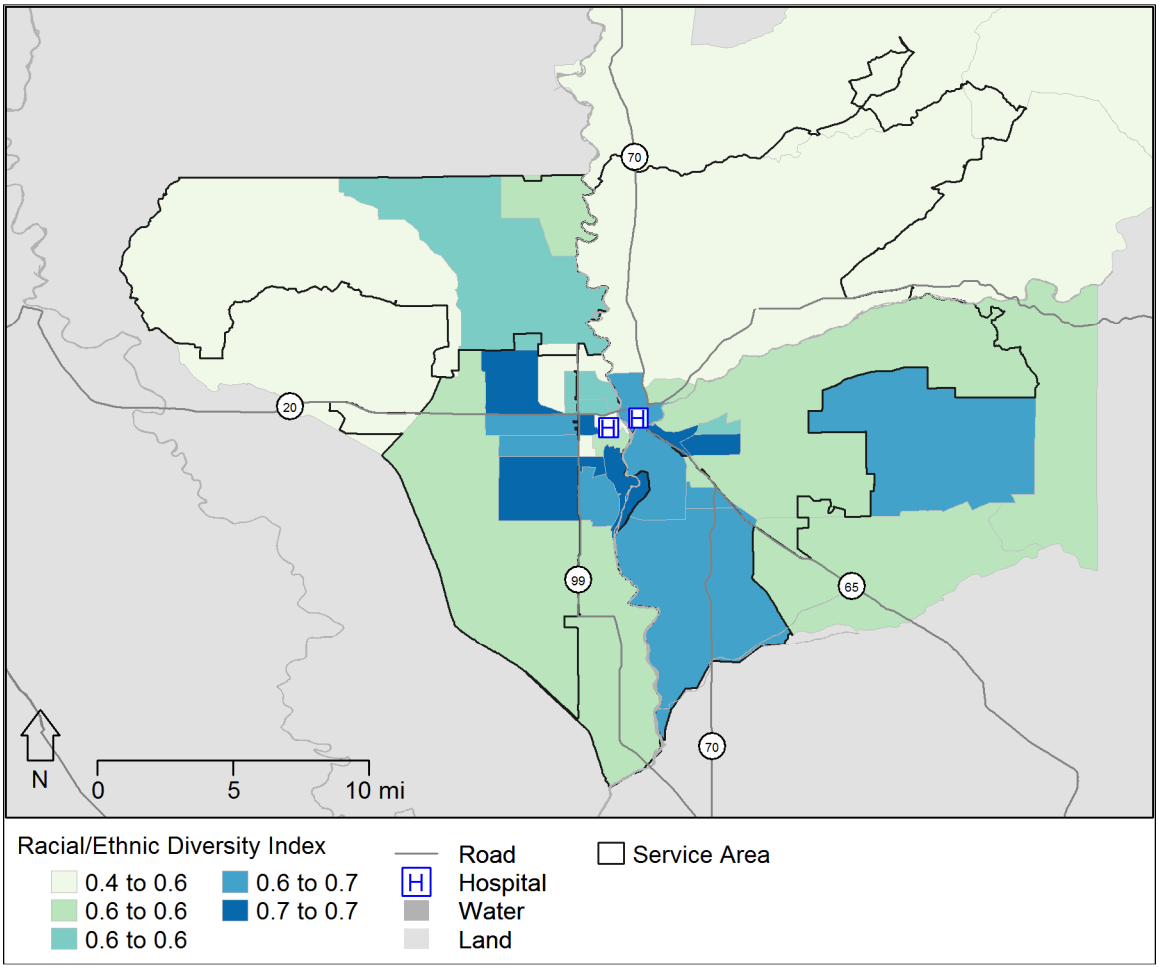

Figure 3: Diversity index for RMMC/SSHNV HSA

Processes and Methods

Determination of Health Status – Conceptual Model

The conceptual model used to support and organize this CHNA was based on a model of population health that includes many of the factors that impact individual health and well-being. Building on the work of America's Health Rankings, the model was developed by the University of Wisconsin's Population Health Institute and is used by the Robert Wood Johnson Foundation's widely known County Health Rankings.[5] The model includes health indicators organized into health outcomes and health factors, and then further organized into smaller categories such as morbidity and mortality; health behaviors; clinical care; social and economic factors; and the physical environment. Counties across the nation are then ranked based on each of the indicators in the model in an attempt to compare the health status of one county to the other. The creators of the model write:

[5] Robert Wood Johnson Foundation. (2015). *Our Approach: County Health Rankings*. Retrieved from http://www.countyhealthrankings.org/our-approach

Helping communities become healthier places to live, learn, work, and play means attending to many interrelated factors. These include health factors such as access to clinical care and improvements in healthy behaviors, such as diet and exercise, but also social and economic factors, such as neighborhood safety, employment, housing, and transit. By monitoring these factors, we can identify avenues to create and implement evidence-informed policies and programs that improve community well-being and health.[6]

The conceptual model presented in Figure 4 is a slightly modified version of the County Health Rankings Model that allowed for the organization of data for this community health assessment (for a detailed description of this organization see Appendix A).

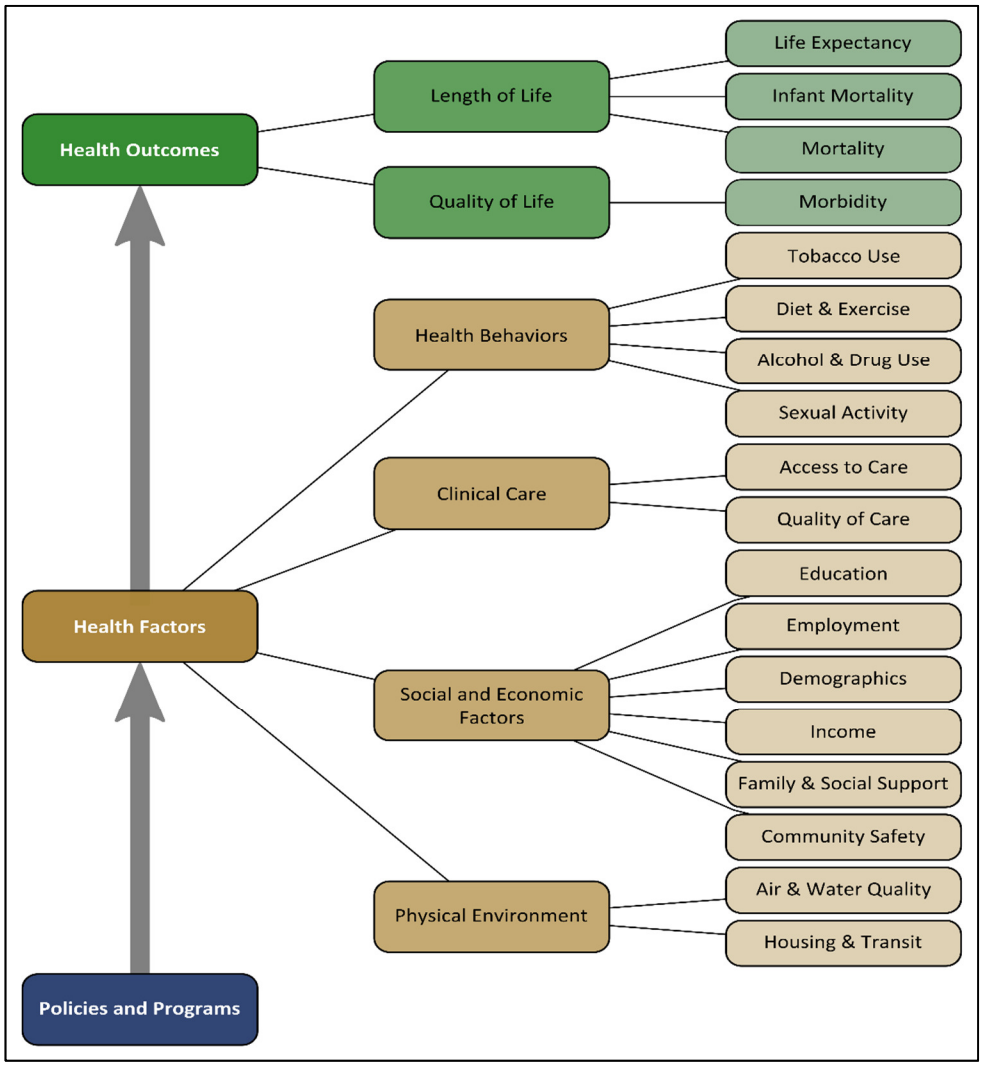

Figure 4: RRMC/SSHNV Community Health Assessment Conceptual Model as modified from the County - Health Rankings Model, Robert Wood Johnson Foundation, and University of Wisconsin, 2015. -

[6] Catlin, B. (2014). *The County Health Rankings: A Treasure Trove of Data*.

Community Health Assessment Process Model

As illustrated in Figure 5, the project was conducted using a series of data collection and analytical stages. The project began with a definition of the HSA based on the analysis of hospital discharge data for both RRMC and SSHNV that identified the ZIP code of residence of each discharge. Area-wide primary and secondary data were collected for the defined HSA. Primary data were collected through interviews with area-wide service providers. Secondary data included health factor and health outcome indicators described in detail in Appendix A, as well as the Community Health Vulnerability Index (CHVI) values for each census tract in the HSA.

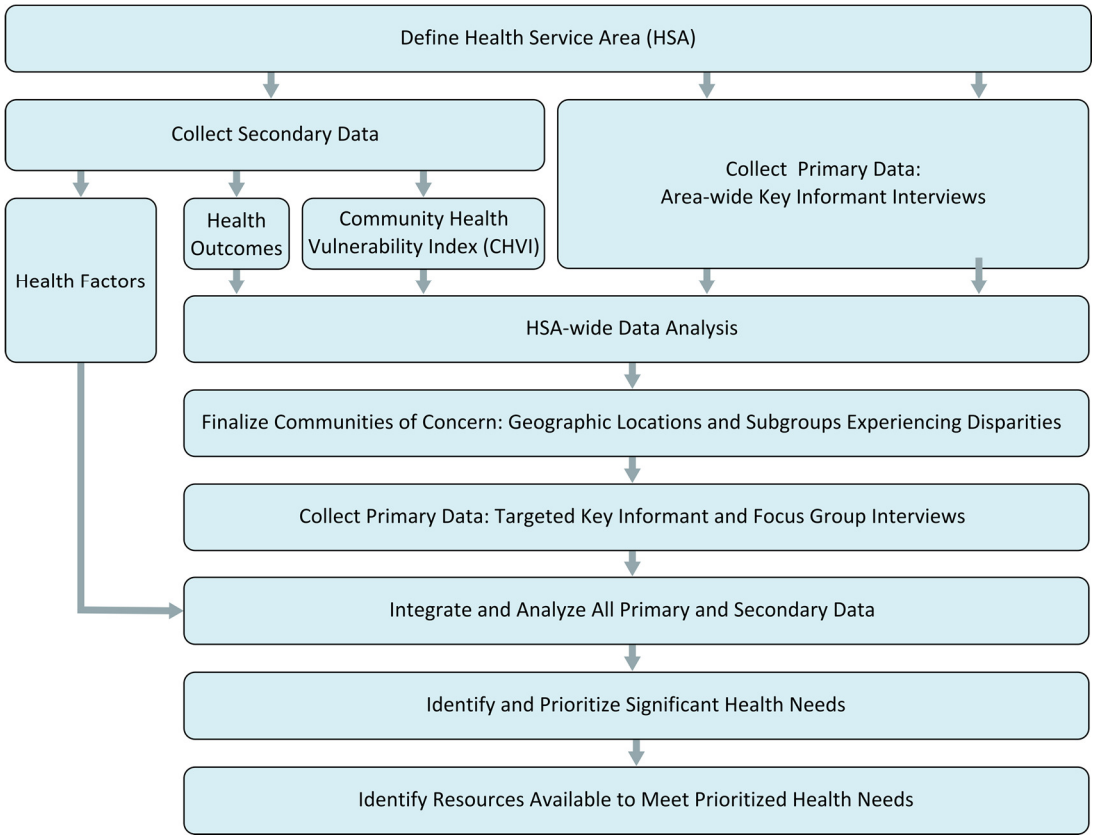

Figure 5: 2016 CHNA process model

Using this approach, 2016 RRMC/SSHNV HSA ZIP code Communities of Concern were defined following an analysis of secondary health outcome indicators, CHVI values, and area-wide key informant or health expert input. Next, targeted focus group interviews were conducted in the ZIP codes containing Communities of Concern. Overall primary and secondary data for the Communities of Concern were then integrated to identify the significant health needs for the HSA. Significant health needs were then prioritized based on an analysis of the primary data. Finally, resources available within the HSA to address health needs were identified.

Methods of Primary Data Collection and Processing

Input from the community was collected through two main mechanisms: key informant interviews with community health experts and service providers, and focus group discussions with community members. Instruments used in primary data collection included a participant informed consent, an interview question guide, a project summary sheet, and a reflection sheet. Prior to their

participation all participants were given an informed consent form, 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 (Appendix C). The interview question guide was used for both the key informant and focus group interviews (Appendix D). The project summary sheet (Appendix E) was given to participants to provide them with information about the project and contact information for CHNA staff. After the interview or focus group was conducted, the facilitator captured the main findings by completing a reflection sheet.

Collecting Primary Data

Primary data were collected between July 2015 and May 2016.

Key Informant Interviews

Key informant interviews were conducted with area service providers and experts representing the broad interests of the community who were familiar with the populations in the HSA (for a listing see Appendix F). Primary data collection began by interviewing area-wide service providers with knowledge of the HSA, including input from both Sutter and Yuba County Public Health Divisions. Findings from the area-wide informants were combined with quantitative data showing locations of populations experiencing disparities, to identify and interview key informants with knowledge about these specific populations and locations. These targeted primary data sources were selected based on their knowledge of the needs of particular geographic locations and/or subgroups experiencing disparities. A total of 10 key informant interviews were completed with 18 community health experts and service providers. The key informant interviews were used to identify additional key service providers to include in the assessment, as well as to identify specific populations that should be included in the focus group interviews.

Focus Group Interviews

Focus group interviews were conducted with community members living in geographic areas of the HSA identified as locations in which residents experienced a disparate amount of poor socio-economic conditions and poor health outcomes. Recruitment consisted of referrals from designated service providers representing vulnerable populations in the HSA, as well as direct outreach to acquire input for a special population group. Six focus group discussions were conducted with a total of 53 community members (a listing can be found in Appendix G).

Processing Primary Data

After each interview was completed, the interview recording was sent to a transcription service. Content analysis was done on the transcriptions using NVIVO 10 Qualitative Analytical Software. Content analysis included thematic coding to potential health needs categories, identification of special populations experiencing health issues, identification of resources, as well as additional coding in accordance to the interview question guide. Results were aggregated to inform the determination of prioritized significant health needs and are presented later in this report.

Methods of Secondary Data Collection and Processing

This section serves as a brief overview of the general secondary data collection and processing approaches used to support the CHNA. Interested readers are referred to Appendices A and B for a more detailed description of the secondary data collection and processing and overall project methodology. Here, a brief overview of secondary data collection is given first, followed by a general overview of several key project methodologies.

Secondary Data Collection

The conceptual model shown previously in Figure 3 was used to organize secondary data collection, which was particularly focused on identifying indicators that would illuminate those concepts organized under the health outcomes and health factor categories. A number of general principles guided the selection of secondary indicators to represent these concepts. First, only indicators associated with categories in the conceptual model were included in the analysis. Second, indicators available at a sub-county level (such as at a ZIP code or smaller level) were preferred for their utility in revealing variations within the HSA. Third, indicators were only collected from data sources deemed reliable and reputable. Finally, indicators were only collected if they were possible to acquire at a reasonable cost. Based on these criteria, the following indicators were selected.

Health Outcomes

The majority of health outcome indicators can be divided between mortality data, primarily obtained from the California Department of Public Health (CDPH), and morbidity data, primarily obtained from the California Office of Statewide Health Planning and Development (OSHPD). These input data were processed using methods described in detail in Appendix A to result in a set of specific health outcome indicators. Input CDPH data were used to develop mortality rates and broader measures of health status for each ZIP code in the HSA. Input OSHPD data were used to develop hospitalization (H) and emergency department (ED) discharge rates, as well as prevention quality indicators (PQIs), for each ZIP code in the HSA. Tables 2 and 3 list the specific indicators derived from these data sources.[7]

Table 2: CDPH-derived health outcome indicators

By Cause Mortality:	Life Expectancy at Birth
Alzheimer's Disease	Years Potential Life Lost (75)
Cerebrovascular Disease (Stroke)	Age-Adjusted All-Cause Mortality
Chronic Liver Disease and Cirrhosis	Infant Mortality Rate
Chronic Lower Respiratory Disease	Low Birth Weight
Diabetes Mellitus	Female Mortality Rate
Diseases of the Heart	Male Mortality Rate
Essential Hypertension & Hypertensive Renal Disease	Teen Birth Rate*
Influenza and Pneumonia	
Intentional Self Harm (Suicide)	
Malignant Neoplasms (Cancer)	
Nephritis, Nephrotic Syndrome and Nephrosis (Kidney Disease)	
Unintentional Injuries (Accidents)	
All Other Causes	

*Indicator was not treated as a health outcome, but was included because it was derived from the same data source.

[7] Due to space constraints not all indicators that were available for analysis will be mentioned in this report.

Table 3: OSHPD-derived health outcome indicators (hospitalization and ED visits) -

Breast Cancer (H/ED)	Assault (H/ED)
Colorectal Cancer (H/ED)	Self-Inflicted Injury (H/ED)
Lung Cancer (H/ED)	Unintentional Injury (H/ED)
Prostate Cancer (H/ED)	Mental Health (H/ED)
Diabetes (H/ED)	Mental Health, Substance Abuse (H/ED)*
Heart Disease (H/ED)	Asthma (H/ED)
Hypertension (H/ED)	Chronic Obstructive Pulmonary Disease (COPD) (H/ED)
Nephritis, Nephrotic Syndrome and Nephrosis (Kidney Disease) (H/ED)	Hip Fractures (H/ED)
Stroke (H/ED)	Oral Cavity/Dental (H/ED)
HIV/AIDS (H/ED)	Total ED Discharge Rate (H/ED)
STI (H/ED)	Total H Discharge Rate (H/ED)
Tuberculosis (H/ED)	PQI (H)*

*Indicator was not treated as a health outcome, but was included because it was derived from the same data source.

Health Factors

The majority of health factor indicators used in the report were obtained from the US Census Bureau. These indicators primarily focus on the socio-demographic and housing characteristics of the population within the HSA, and are listed in Table 4. Additional health factor indicators were collected from a variety of other sources, and are listed in Table 5. Interested readers are referred to Appendix A for further details about the sources and processing steps applied to these indicators.

Table 4: U.S. Census Bureau-derived health factor indicators

Total Population	Percent Civilian Noninstitutionalized Population with a Disability
Percent Asian (not Hispanic)	Percent Over 18 Who are Civilian Veterans
Percent Black (not Hispanic)	Percent 25 or Older Without a High School Diploma
Percent Hispanic (Any Race)	Percent Single Female-Headed Households
Percent American Indian (Not Hispanic)	Percent Unemployed
Percent Pacific Islander (Not Hispanic)	Percent Uninsured
Percent White (not Hispanic)	GINI Coefficient
Percent Other Race or Two or More Races (Not Hispanic)	Median Income
Percent Minority (Hispanic or Non-White)	Percent Families with Children in Poverty
Racial/Ethnic Diversity Index	Percent Households 65 years or Older in Poverty
Population 5 Years or Older Who Speak Limited English	Percent Single Female-Headed Households in Poverty
Population by Age Group: 0-4, 5-14, 15-24, 25-34,45-54, 55-64, 65-74, 75-84, and 85 and over	Percent on Public Assistance
Median Age	Percent with Income Less Then Federal Poverty Level

Percent Non-Citizen	Average Population per Housing Unit
Percent Female	Percent Renter-Occupied Housing Units
Percent Foreign-Born	Percent Vacant Housing Units
Percent Male	Percent Households with No Vehicle

Table 5: Remaining health factor indicators -

Population Living Near a Transit Stop	Modified Retail Food Environment Index (mRFEI)
Pollution Burden	Park Access
Current Smokers	Health Professional Shortage Areas (Primary Care, Dental, Mental Health)
Binge Drinking	Major Crime Rate
Obesity	Traffic Accidents Resulting in Fatalities
Food Deserts	

Community Health Vulnerability Index (CHVI)

A subset of the demographic health factor indicators (shown in Table 6) was also used to create the Community Health Vulnerability Index (CHVI), a composite index used to help understand the distribution of health disparities within the HSA. Like the *Community Needs Index (CNI)*[8] on which it was based, the CHVI combines multiple socio-demographic and housing indicators to help identify those locations experiencing greater health disparities. The CHVI differs from the CNI in the manner in which its indicators are combined. 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 Appendix A for further details as to its construction.

Table 6: Indicators included in the CHVI

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

Report Processes

The analytical processes for this CHNA were designed with care to allow for a tight integration of both qualitative and quantitative data sources. This integration allowed the strength of each approach to buttress the weakness in the other. Secondary quantitative data is useful because it provides a broad and consistently defined view of conditions within the HSA. But its use is limited based on data availability; also, because it lacks the context necessary to provide true understanding, and because its collection is planned ahead of time, it is less useful in identifying emerging trends. While primary qualitative data can sometimes be anecdotal and strongly influenced by the sources from which it is derived, when done well it excels in providing needed context, an understanding of lived experiences, and an ability to detect new, unanticipated trends or concepts. The sections below describe how

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

qualitative and quantitative data were integrated in key CHNA processes -- identifying Communities of Concern, and identifying and prioritizing significant health needs.

Identifying Communities of Concern

A key element of the CHNA methodology is the identification of Communities of Concern—geographic areas or population sub-groups within the HSA 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 assessing the HSA more broadly, they allow for a focus on those portions of the HSA likely experiencing the greatest health disparities.

Geographic Communities of Concern were identified using a combination of primary and secondary data sources. A general description of this process is provided here; interested readers are referred to Appendix B for a more in-depth description. Three secondary data factors were considered in determining if ZIP codes within the HSA would be identified as geographic Communities of Concern: 1) if the ZIP code boundary contained or intersected census tracts with CHVI scores within the highest 20% in the HSA, 2) if the ZIP code consistently had among the highest morbidity values in the HSA, and 3) if the ZIP code consistently had among the highest mortality indicator values in the HSA. ZIP codes that met at least one of these three criteria were combined with the list of geographic locations consistently mentioned in initial area-wide primary data to result in a preliminary set of geographic Communities of Concern. An expert review of this preliminary list was then conducted and the final set was modified based on this review. Population subgroups of concern were identified solely based on the results of primary data.

Identifying Significant Health Needs

A major requirement of the CHNA was the identification of significant health needs. A general description of the process used in this report is given here; interested readers are referred to Appendix B for a more detailed description.

Significant health needs were identified through an integration of both qualitative and quantitative data. The process began by generating a broad list of 10 potential health needs that could exist within the HSA. This list was based on health needs identified in previous CHNA reports during the 2013 process, as well as a preliminary review of primary data. Once this list was created, both quantitative and qualitative indicators associated with each potential health need were identified in a crosswalk table. While all of these needs exist within the HSA to a greater or lesser extent, the purpose here was to identify those which were most significant.

Rates for those secondary indicators associated with the potential health needs were reviewed for each Community of Concern to determine which indicators were consistently problematic within the HSA. Next, this set of problematic indicators was compared, via the crosswalk table, to the potential health needs to select a subset of potential health needs for consideration as significant health needs. Primary data sources were also analyzed using the crosswalk table to identify potential health needs for consideration as significant health needs. The results from the primary and secondary potential health needs analyses were then merged to create a final set of significant health needs. (For a more detailed explanation of the processes used to identify significant health needs see Appendix B).

Prioritizing Significant Health Needs

Once significant health needs were identified through the process described above, they were prioritized based on an analysis of primary data. The percent of all primary data sources that referenced each health need and the average number of times the significant health need was referenced by all sources was measured, and the significant health needs were ranked based on a combination of these measures. The significant health need with the highest combined value was identified as having the highest priority, that with the second highest value, the second priority, and so on to the significant health need with the lowest combined value given the lowest priority.

Findings

Communities of Concern

Analysis of both primary and secondary data revealed four communities within four distinct ZIP codes that met the criteria for classification as a Community of Concern. These are noted in Table 7, with the census population provided for each, as well as in Figure 6.

Table 7: Identified Communities of Concern for RRMC/SSHNV HSA

ZIP Code	County	Community/Area*	Population
95901	Yuba	Linda	32,569
95953	Sutter	Live Oak	10,575
95961	Yuba	Olivehurst	26,753
95991	Sutter	Yuba City	41,309
Total Population Communities of Concern			111,206
Total Hospital Service Area Population			*146,834*
Community of Concern Population as a Percent of Total HSA Population			*75.7%*

(Source: US Census, 2013)

* ZIP code and community area name is approximate here and throughout the report.

Figure 6 displays the RRMC/SSHNV Communities of Concern. In the figure, census tracts with red diagonal hash marks show the Communities of Concern. These census tract designations approximate the specific communities within the four, unique ZIP code boundaries that are classified as Communities of Concern.

When asked to identify geographic areas within the RRMC/SSHNV HSA that were experiencing health disparities, key informants consistently pointed to Linda, Live Oak, Richland/Central Garden Highway area in Yuba City, portions of Marysville, and Olivehurst.

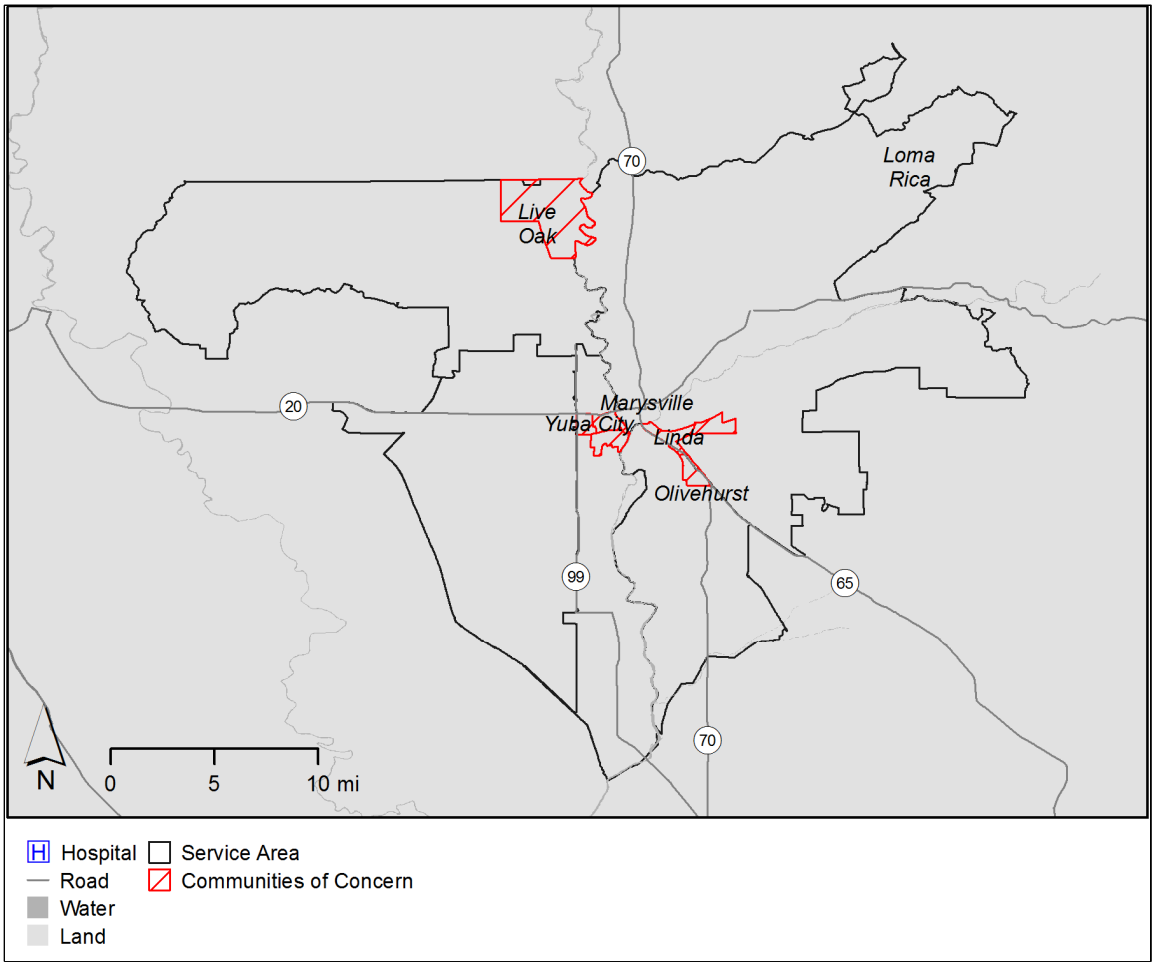

Figure 6: Communities of Concern for RRMC/SSHNV HSA

The Community Health Vulnerability Index for Communities of Concern

As described previously in this report, the CHVI assists in the identification of geographical areas through the HSA that may be experiencing health disparities based on socio-economic drivers of poor health outcomes. The CHVI results for the RRMC/SSHNV HSA are presented below in Figure 7 with the identified Communities of Concern denoted by the diagonal lines.

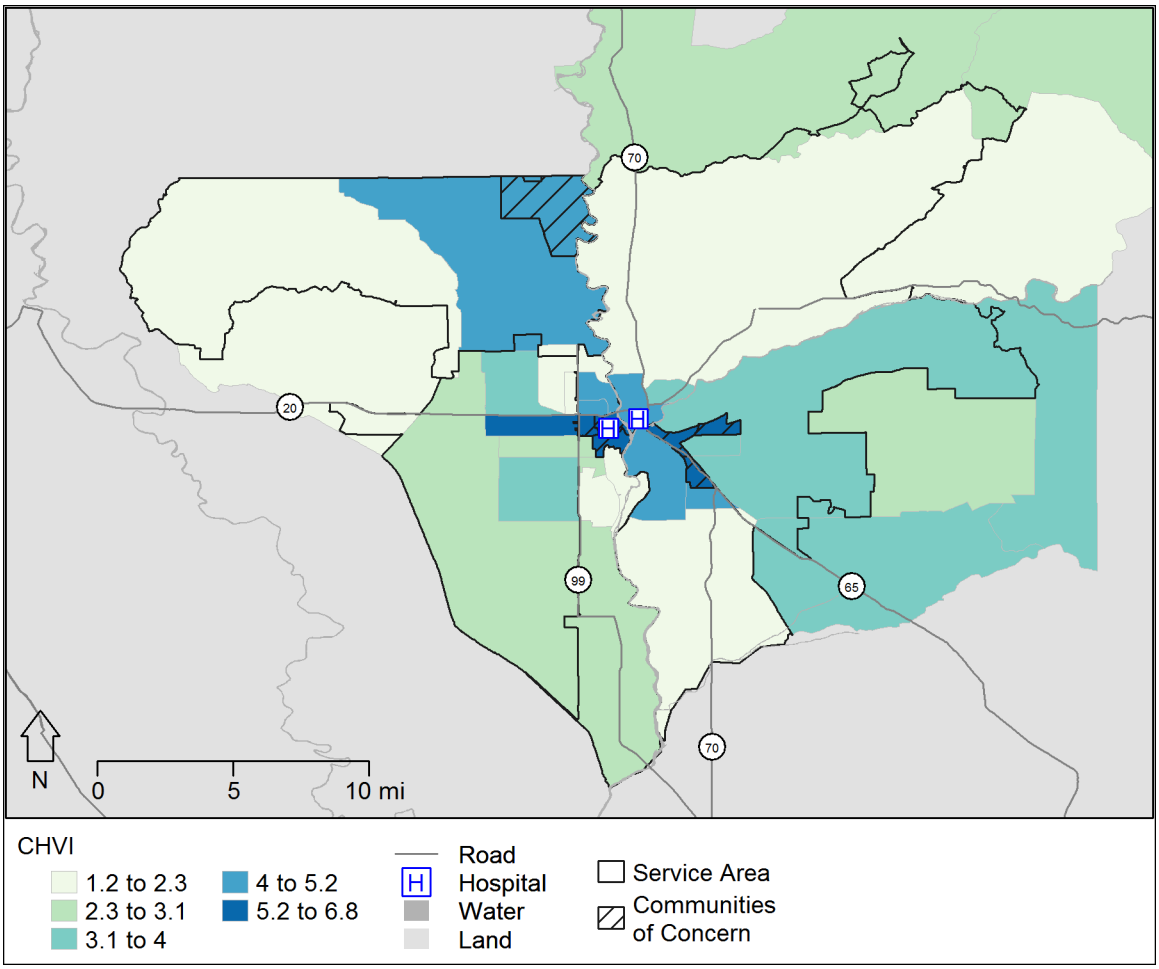

Figure 7: CHVI for RRMC/SSHNV HSA

When examining vulnerability through the RRMC/SSHNV HSA, drastic differences among census tracts were apparent.[9] These appear as the darkest colored tracts. Specifically, a high percentage of residents in the communities of Live Oak, Olivehurst, and Yuba City displayed socio-economic characteristics that are most closely associated with highest vulnerability to poor health outcomes (see Table 6 for specific indicators). Further, residents in the community of Live Oak displayed socio-economic characteristics associated with second highest level, or quintile, of vulnerability to poor health outcomes.

Specific Populations Experiencing Disparities in Communities of Concern

When asked to identify specific groups within these communities that were experiencing health disparities, key informants used a number of descriptors to designate these populations, such as: low income, low educated, poor White, Hispanic/Latino, Indian/Punjabi,[10] Hmong,[11] migrant farm workers,

[9] The CHVI is calculated so that its values represent relative levels of vulnerability, and its numbers vary based on the areas for which it is calculated. What is most important in interpreting the CHVI is not the actual numbers, but their relative ranking, in which higher values are associated with higher "vulnerability" (or disadvantage), and lower values with lower vulnerability.

[10] Punjabis are an ethnic group from the Punjab region of northern India with a distinct culture and language.

[11] Hmong are an ethnic group from regions of China, Vietnam, Laos, and Thailand.

and the undocumented. Though research shows that health disparities often fall along race and/or ethnic lines, one key informant noted that this was not always the case in the community: "*I think our third generation white families have poorer health outcomes than some minority groups, such as first generation Hispanics…*" (KI_4). Other key informants noted that income and education level was the most appropriate means to identify specific populations in the community experiencing health disparities. One key informant, when asked to describe specific communities in the HSA experiencing health disparities, described some residents of Linda this way: *"…you are talking mostly white, [many are] below the federal poverty level. I mean poor, out of work, under-educated. It is a community that has generational poverty; you are born into it and you stay in it…*" (KI_5). Other key informants pointed to non-English speaking members of the community as more vulnerable due to challenges associated with acculturation.

Prioritized, Significant Health Needs in Communities of Concern

Figure 8 displays the seven significant health needs for the RRMC/SSHNV HSA in prioritized order. Prioritization was based on a combination of the percent of all sources that referenced the potential health need as a significant health need, shown by the blue portion of the bar. This is combined with the average number of times that each potential health need was referenced among all primary data sources, as shown in the red portion of the bar. Further, based on the analysis of primary data only, a seventh health need was identified and added to the final list.

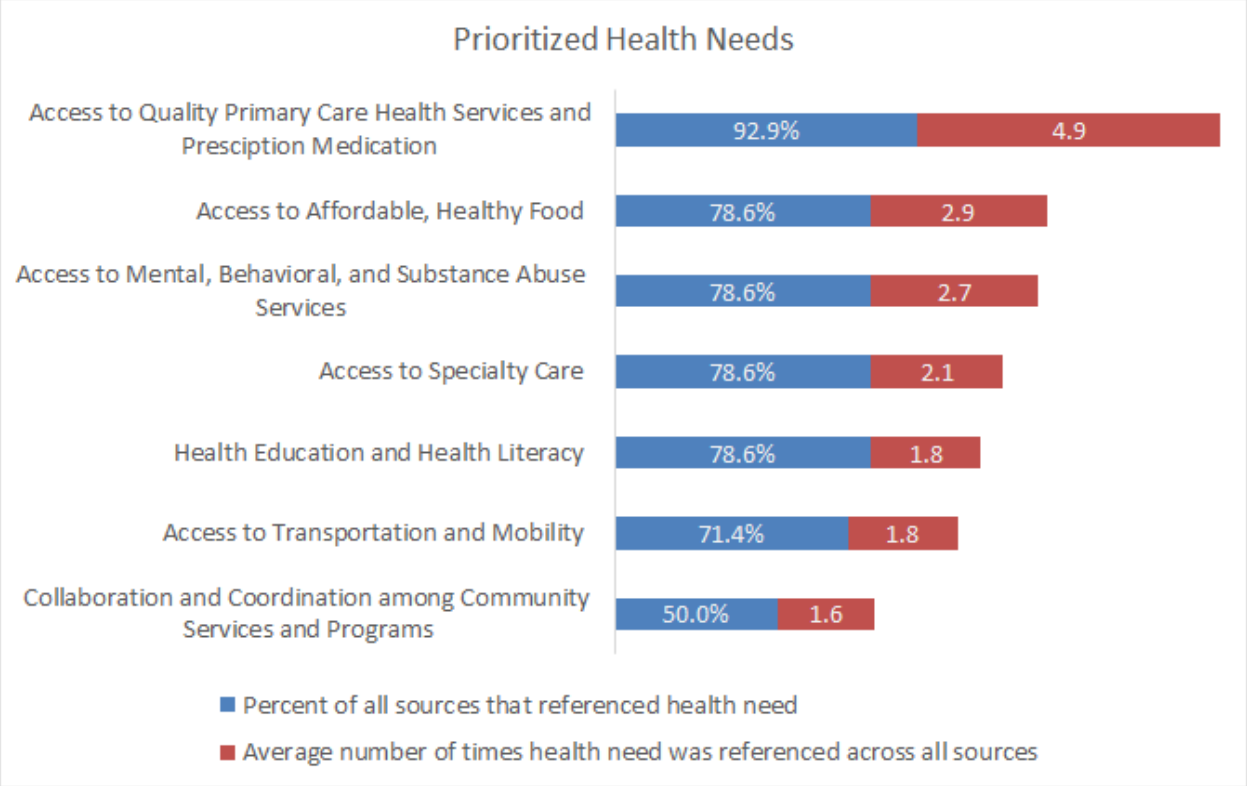

Figure 8: Prioritized, significant health needs for RRMC/SSHNV Communities of Concern

The identified significant health needs for the Communities of Concern are listed below in prioritized order. Secondary data indicators that had undesirable rates in at least two-thirds of the Communities of Concern are listed in the table below each significant health need. Qualitative themes that emerged during analysis are also provided in the table.

1. Access to Quality Primary Care Health Services and Prescription Drugs

The highest priority significant health need for the Communities of Concern was access to quality primary care health services and prescriptions drugs. 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
• Health Professional Shortage Area – Primary Care • Total hospitalization rates • Uninsured rates	• Limited number of services for low income populations • Shortage of primary care physicians • Lack of health insurance and costs associated with getting care • Limited access to care imposed by certain types of health insurance • High deductible insurance plans • High costs of prescription drugs • Limited time with provider in exam room • Low reimbursement rates of certain health insurance plans

2. Access to Affordable, Healthy Food

The second highest priority significant health need was access to affordable, healthy foods. Eating a healthy diet is important for one's overall health and well-being. 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 often are overloaded with fast food and other establishments where unhealthy food is sold.

Quantitative Indicators	Qualitative Themes
• USDA Federally Designated Food Desert • Modified Retail Food Environment Index • Emergency department visits and hospitalizations due to diabetes • Hospitalizations and mortality due to heart disease • Hospitalizations and mortality due to hypertension • Hospitalizations due to nephritis, nephrotic syndrome, and nephrosis • Mortality due to stroke	• Costs of healthier foods • Abundant fast food outlets • Lack of education in making healthy food choices • Food deserts and lack of fresh food outlets • Food insecurity for low income populations

3. Access to Mental, Behavioral, and Substance Abuse Services

The third highest priority significant health need was 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 also occur. Adequate access to mental, behavioral, and - substance abuse services helps community members to obtain additional support when needed. -

Quantitative Indicators	Qualitative Themes
• Health Professional Shortage Area – Mental Health • Emergency department visits and hospitalizations due to self-inflicted injury/suicide • Hospitalization due to mental health issues	• Stress of living in a low income situation • Traumatic childhood experiences untreated that become chronic mental health issues • Stress of seasonal work in agriculture • Lack of mental and behavioral health services available • Costs of mental and behavioral health services inhibits one from seeking services • Stigma associated with mental health issues as a barrier for seeking treatment • Drug, tobacco, and alcohol addiction as a means of self-medication • Limited number of drug rehabilitation services in community

4. Access to Specialty Care

The fourth highest priority significant health need for RRMC/SSHNV Communities of Concern was access to specialty care. Specialty care services are those devoted to a particular branch of medicine and focus on the treatment of a particular disease. Primary and specialty care go hand-in-hand, and without access to specialists such as endocrinologists, cardiologists, and gastroenterologists community residents are often left to manage chronic diseases such as diabetes and high blood pressure on their own.

Quantitative Indicators	Qualitative Themes
• Hospitalizations due to diabetes • Hospitalizations and mortality due to heart disease • Hospitalizations and mortality due to hypertension • Hospitalizations due to nephritis, nephrotic syndrome, and nephrosis • Hospitalizations due to stroke	• Long wait times to see specialists • High costs of accessing specialty care • Limited number of specialists treating the community • Having to travel out of the area to find specialists • Specialists not taking certain types of insurance

5. Access to Health Education and Health Literacy

The fifth highest priority significant health need for the HSA was access to health education and health literacy. Knowledge is important for individual health and well-being, and health education interventions are powerful tools 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. Health education around infectious disease control (e.g. STI prevention, influenza shots) and intensive health promotion and education strategies around the management of chronic diseases (e.g. diabetes, hypertension, obesity, and heart disease) are important for community health improvement.

Quantitative Indicators	Qualitative Themes
• Emergency department visits and hospitalizations due to diabetes • Hospitalizations and mortality due to heart disease • Hospitalizations and mortality due to hypertension • Hospitalizations due to NEP • Mortality due to stroke • Hospitalizations due to unintentional injury • Current smoking rates • Teen pregnancy rates	• Lack of education in proper diet and nutrition practices • Lack of education in prevention and healthy lifestyle choices • Teen pregnancy • Poor health literacy and knowledge passed down to younger generations • Social norms reinforcing poor health behaviors • Lack of understanding of how to access services • Lack of knowledge of services that are available • Community members not understanding the importance of physical activity

6. Access to Transportation and Mobility

The sixth highest priority significant health need for RRMC/SSHNV Communities of Concern was access to transportation and mobility. Having access to transportation services to support individual mobility is a necessity of daily life. Without transportation, individuals struggle to attain their basic needs, including those that promote and support a healthy life.

Quantitative Indicators	Qualitative Themes
• Percent of households without vehicle	• Dangers of pedestrian traffic on rural streets and highways • Limited sidewalks on many streets; low walkability • Difficulty in using public transportation to seek healthcare • Limited amount of bike paths • Challenges of using public transportation in heat of summer • Challenges of using limited transportation services with young children

7. Additional Identified Health Need – Collaboration and Coordination among Community Services and Programs

When community health needs are viewed from a requisite perspective, or those things required to improve the health of the community, the idea that enhanced collaboration and coordination among organizations, programs, and services would lead to better health outcomes for community residents appears logical. All but one key informant identified this as a priority health need for the RRMC/SSHNV HSA. Though no quantitative indicators were used in this assessment to measure the degree of collaboration among community services, the qualitative themes that emerged are noted below.

Quantitative Indicators	Qualitative Themes
• None used in this assessment	• Implementing and adopting electronic health records that follows the patient • Developing a community-wide vision for community health • Improving coordination of care among multiple providers and services serving the same patient • Developing political will to throughout the community to promote health • Enhancing partnerships to address key health issues in the community • Working across silos of multiple programs and services • Sharing best practices and competencies among service providers • Moving from a competitive mindset to partnerships • Enhanced coordination between hospitals, public health, primary, and behavioral healthcare

Health Outcomes in Communities of Concern – Length and Quality of Life

Examination of health outcomes for the assessment included measures of morbidity and mortality. The conditions examined included the major categories of chronic disease, mental health, unintentional injury, cancer, respiratory health, and dental health. In addition, all-cause mortality, infant mortality, and life expectancy at birth are also detailed here. Data examined included CDPH mortality data by ZIP code and OSHPD ED visits and hospitalizations by condition. Rates for mortality, ED visits, and hospitalizations are displayed, as are both county and state rates for comparison purposes.

Overall Health Status (Age-adjusted Mortality, Infant Mortality, and Life Expectancy at Birth)

Various quantitative indicators help to provide information about what it feels like to live in a community on an everyday basis. Though specific measures of mortality tell us how community members suffered related to specific conditions, overall health status indicators communicate length of life, quality of life, socioeconomic factors and the intersection of the environment and personal behaviors. Table 8 examines three common overall health status indicators: age-adjusted all-cause mortality, infant mortality, and life expectancy at birth for each of the RRMC/SSHNV Communities of Concern. **NOTE: In this table, and all that follow, any indicator that exceeded *any* county or state benchmark is highlighted. The Healthy People 2020 is displayed in some instances, but not used for benchmarking.**

Table 8: Overall health status indicators: Age-adjusted all-cause mortality, infant mortality, and life expectancy at birth compared to county, state, and Healthy People 2020 benchmarks.

	ZIP Code	County	Age Adjusted All-Cause Mortality (per 10,000 pop)	Infant Mortality Rate (per 1,000 live births)	Life Expectancy at Birth (Years)
Overall Health Status Indicators	95901 – Linda	Yuba	85.4	4.7	76.0
	95953 – Live Oak	Sutter	81.5	5.0	77.0
	95961 – Olivehurst	Yuba	69.3	4.5	78.5
	95991 – Yuba City	Sutter	85.8	5.2	76.5
	Sutter County		*78.5*	*4.6*	*78.0*
	Yuba County		*83.1*	*4.0*	*76.5*
	CA State		*64.6*	*4.9*	*80.5*
	National 2013		--	--	*78.8*[12]
	Healthy People 2020 Target		--	*6.0*[13]	--

(Source: CDPH, 2010-2012)

All Communities of Concern had rates that exceeded benchmarks in each category. Life expectancy at birth has gained notoriety in recent "place matters" campaigns.[14] These campaigns note that where someone lives can be a predictor of length of life. Life expectancy at the national level is currently 78.8 years. Life expectancy for all Communities of Concern was lower than both the county and state levels with one exception—95961 (Olivehurst). ZIP code 95901 (Linda) had a life expectancy of 76.0 years compared to the state with 80.5 years. Said another way, residents of Linda will, on average, live 4.5 fewer years than residents across the state.

Chronic Diseases (Diabetes, Heart Disease, Stroke, Hypertension, and Kidney Disease)

Chronic diseases, specifically diabetes, heart disease, stroke, hypertension, and kidney diseases are among the top leading causes of death in the nation.[15] These conditions were commonly mentioned as health conditions that RRMC/SSHNV residents struggle with. An evaluation of quantitative data also revealed clear geographical disparities of these outcomes within the service area. Data for these conditions in the Communities of Concern follows.

Diabetes

Table 9 displays rates of mortality, ED visits, and hospitalizations due to diabetes for each Community of Concern.

[12] Centers for Disease Control and Prevention. (2015). *Deaths: Final data for 2013*. Retrieved from: - http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_02.pdf -

[13] Office of Disease Prevention and Health Promotion. (2014). *Maternal, Infant and Child Health*. Retrieved from: - https://www.healthypeople.gov/2020/leading-health-indicators/2020-lhi-topics/Maternal-Infant-and-Child-Health/data -

[14] Policy Link. (2007) *Why Place Matters: Building a Movement for Healthy Communities*. Retrieved from: - http://www.policylink.org/sites/default/files/WHYPLACEMATTERS_FINAL.PDF

[15] Centers for Disease Control and Prevention. (2015). *Leading causes of death*. Retrieved from: http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm

Table 9: Mortality, ED visit, and hospitalization rates for diabetes compared to county, state, and Healthy People 2020 benchmarks (rates per 10,000 population)

	ZIP Code	Mortality	ED Visits	Hospitalizations
Diabetes	95901 – Linda	1.7	363.2	291.6
	95953 – Live Oak	2.2	172.9	252.1
	95961 – Olivehurst	1.5	308.6	252.0
	95991 – Yuba City	2.4	261.6	263.8
	Sutter County	2.6	211.2	230.1
	Yuba County	1.0	308.2	255.9
	CA State	*2.1*	*210.9*	*194.0*
	Healthy People 2020 Goal	*6.6*	--	--

(Source: Mortality: CDPH, 2012; ED visits and hospitalizations: OSHPD, 2011-2013)

In all Communities of Concern, rates for mortality, ED visits, and hospitalizations due to diabetes exceeded at least one benchmark with one exception—95953 (Live Oak). Some were more notable than others. While mortality rates of Sutter County due to diabetes were 2.6 times greater than rates for Yuba County, residents of Yuba County visited the ED due to diabetes one-and-a-half times more frequently than did residents of Sutter County.

Heart Disease

Heart disease is the leading cause of death in the nation for individuals under the age of 85; it includes a number of different types of heart-related conditions, with coronary heart disease the most common and a major cause of heart attacks. More than 600,000 people die of heart disease each year.[16] Key informants and community members mentioned heart disease and high cholesterol as common conditions for area residents. Table 10 examines rates for mortality, ED visits, and hospitalizations due to heart disease.

Table 10: Mortality, ED visit and hospitalization rates for heart disease compared to county, state, and Healthy People 2020 benchmarks (rates per 10,000 population)

	ZIP Code	Mortality	ED Visits	Hospitalizations
Heart Disease	95901 – Linda	24.5	142.7	234.0
	95953 – Live Oak	17.6	51.3	177.0
	95961 – Olivehurst	13.9	117.5	196.3
	95991 – Yuba City	21.4	100.1	219.4
	Sutter County	18.6	84.1	196.7
	Yuba County	19.8	119.3	211.9
	CA State	*15.8*	*70.8*	*143.0*
	Healthy People 2020 Target	*10.1*	--	--

(Source: Mortality: CDPH, 2012; ED visits and hospitalizations: OSHPD, 2011-2013)

Both Sutter and Yuba counties had ED visit and hospitalization rates due to heart disease that were higher than the state benchmark. Mortality due to heart disease was higher than state benchmarks in all Communities of Concern with one exception – 95961 (Olivehurst). Residents of the

[16] Centers for Disease Control and Prevention. (2015). *Heart Disease Facts*. Retrieved from: http://www.cdc.gov/heartdisease/facts.htm

Linda area visited the ED due to heart disease twice as frequently as did residents across the state. In hospitalizations, residents of the Live Oak area had the lowest rates compared to all other Communities of Concern.

Stroke, Hypertension, and Kidney Disease

Stroke was the fifth leading cause of death at the national level in 2013.[17] Approximately 800,000 people have a stroke each year, with the most common type those that restrict blood flow to the brain.[18] Tobacco smoking and hypertension drastically increase risk for stroke. Hypertension is common in approximately one out of every three adults.[19] Both stroke and hypertension are discussed together here. Hypertension also increases risk for kidney disease, along with heart disease and diabetes. Tables 11, 12, and 13 examine mortality, ED visits, and hospitalizations related to stroke, hypertension, and kidney disease.

Table 11: Mortality, ED visit, and hospitalization rates for stroke compared to county, state, and Healthy People 2020 benchmarks (rates per 10,000 population)

	ZIP Code	Mortality	ED Visits	Hospitalizations
Stroke	95901 – Linda	3.9	22.2	66.6
	95953 – Live Oak	5.2	15.8	56.5
	95961 – Olivehurst	3.0	16.2	53.2
	95991 – Yuba City	5.1	18.0	69.3
	Sutter County	5.1	16.8	64.9
	Yuba County	4.6	19.4	61.3
	CA State	*3.6*	*20.3*	*56.1*
	Healthy People 2020 Target	*3.4*	--	--

(Sources: Mortality: CDPH, 2012; ED visits and hospitalizations: OSHPD, 2011-2013)

While both Sutter and Yuba counties had mortality and hospitalization rates due to stroke that were higher than the state benchmark, rates for ED visits were lower for both counties. Only one Community of Concern, 95901 (Linda area), exceeded any benchmark in all three categories of stroke. Olivehurst (95961) did not exceed any benchmark in any category.

County benchmarks were not available for mortality due to hypertension as noted in Table 12. However, all Communities of Concern had rates higher than a benchmark for both ED visits and hospitalizations, with one exception – 95953 (Live Oak area). Live Oak residents visited the ED for hypertension at rates lower than any benchmark, and almost half as frequently as residents of Yuba County.

[17] Centers for Disease Control and Prevention. (2015). *Leading Causes of Death*. Retrieved from: http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm

[18] Centers for Disease Control and Prevention. (2015). *Stroke Facts*. Retrieved from: http://www.cdc.gov/stroke/facts.htm

[19] Centers for Disease Control and Prevention. (2015). *Blood Pressure Facts*. Retrieved from: http://www.cdc.gov/bloodpressure/facts.htm

Table 12: Mortality, ED visit and hospitalization rates for hypertension compared to county and state benchmarks (rates per 10,000 population)

	ZIP Code	Mortality	ED Visits	Hospitalizations
Hypertension	95901 – Linda	1.2	656.5	539.1
	95953 – Live Oak	1.3	270.8	443.8
	95961 – Olivehurst	0.9	489.5	423.2
	95991 – Yuba City	1.2	492.5	529.0
	Sutter County	--	*388.3*	*464.7*
	Yuba County	--	*538.0*	*479.8*
	CA State	*1.2*	*412.6*	*387.2*

(Sources: Mortality: CDPH, 2012; ED visits and hospitalizations: OSHPD, 2011-2013)

Table 13 displays mortality, ED visits, and hospitalization due to kidney disease. As displayed in the table, both Sutter and Yuba counties had ED visit rates lower than the state benchmark, yet had hospitalization rates that exceeded the state's rate. Residents of the Live Oak area (95953) died due to nephritis at rates higher than the state benchmark, yet they visited the ED and were hospitalized at rates lower than the state benchmarks. Among all Communities of Concern, residents of the Olivehurst area (95961) visited the ED more frequently due to kidney disease than any other.

Table 13: Mortality, ED visits and hospitalization rates for kidney diseases compared to county and state benchmarks (rates per 10,000 population)

	ZIP Code	Mortality: Nephritis	ED Visits*	Hospitalizations*
Kidney Disease	95901 – Linda	0.7	50.5	208.2
	95953 – Live Oak	0.9	21.6	160.2
	95961 – Olivehurst	0.6	52.5	192.0
	95991 – Yuba City	0.6	40.1	204.0
	Sutter County	--	*30.5*	*171.8*
	Yuba County	--	*49.8*	*192.9*
	CA State	*0.7*	*57.6*	*161.5*

(Sources: Mortality: CDPH, 2012; ED Visits and hospitalizations: OSHPD, 2011-2013)
* OSHPD data includes data for conditions nephritis, nephrotic syndrome, and nephrosis

Both key informants and focus group participants identified chronic diseases as priority health issues in the Communities of Concern, including hypertension, diabetes, heart disease, and similar. For example, when asked to identify key issues in the HSA all but one key informant referenced diabetes. Two of the community focus groups identified diabetes as a top health concern. One community member described their experience with diabetes: "*In my family, we all suffer from diabetes*" (FG_4). A key informant described the prevalence and acceptance of this condition among members of the community served by their organization: *"…but the stories you hear about people who have lost their eyesight and they are like, 'uh, don't worry about it; my brother is blind, my uncle is blind…we all have diabetes'"* (KI_6). Another community health expert described their observation of key health issues in the Communities of Concern: *"…lots of obesity, and of course, diabetes, heart disease, hypertension, chronic illnesses…"* (KI_5).

Mental Health and Self-Inflicted Injury

The lack of access to mental health services and the struggle that many community members experienced when coping with mental health illness and substance abuse was a main finding of this CHNA. Area experts and community members consistently reported the immense struggle service area residents had in maintaining positive mental health and accessing treatment for mental illness. As mentioned previously in this report, access to mental health and substance abuse treatment was the third highest priority significant health need for the RRMC/SSHNV HSA. Included in this section of the report are ED visits and hospitalizations related to mental health conditions, substance abuse, and suicide/self-inflicted injury.

Mental Health

Table 14 displays the rates for Communities of Concern for all mental health-related ED visits and hospitalizations.

Table 14: ED visit and hospitalization rates due to mental health issues compared to county and state benchmarks (rates per 10,000 population)

	ZIP Code	ED Visits	Hospitalizations
Mental Health (Overall)	95901 – Linda	377.1	280.9
	95953 – Live Oak	85.4	171.5
	95961 – Olivehurst	215.9	202.5
	95991 – Yuba City	257.1	278.1
	Sutter County	*174.7*	*215.9*
	Yuba County	*274.4*	*235.5*
	CA State	*153.6*	*188.6*

(Source: ED visits and hospitalization: OSHPD, 2011-2013)

Yuba County residents visited the ED and were hospitalized for mental health issues at rates higher than those of both Sutter County and the state. In both counties, all Communities of Concern had rates for ED visits and hospitalizations due to mental health that exceeded a benchmark with the exception of the Live Oak area (95953). Notably, Linda area residents (95901) visited the ED due to mental health issues at rates well over twice those of the state.

Suicide and Self-Inflicted Injury

Table 15 displays mortality rates due to suicide, and ED visits and hospitalizations due to self-inflicted injury for the four Communities of Concern.

Both Sutter and Yuba counties had mortality and ED visit rates due to suicide/self-inflicted injury that exceeded the state benchmark. Table 15 shows that both Linda (95901) and Live Oak (95953) areas had mortality rates due to suicide/self-inflicted injury that exceeded the state benchmark. Among all Communities of Concern, 95901 (Linda) had the highest ED visits, while 95991 (Yuba City) had the highest hospitalization rates.

Table 15: Mortality rates due to suicide and ED visits and hospitalization rates due to self-inflicted injury compared to county, state, and Healthy People 2020 benchmarks (rates per 10,000 population)

	ZIP Code	Mortality	ED Visits	Hospitalizations
Suicide/Self-Inflicted Injury	95901 – Linda	1.1	15.3	5.1
	95953 – Live Oak	1.5	7.4	3.7
	95961 – Olivehurst	0.7	9.8	4.6
	95991 – Yuba City	1.0	12.2	5.4
	Sutter County	*1.3*	*9.3*	*4.0*
	Yuba County	*1.5*	*11.9*	*4.7*
	CA State	*1.0*	*8.2*	*4.4*
	Healthy People 2020	*1.0*	--	--

(Sources: Mortality: CDPH, 2012; ED visits and hospitalizations: OSHPD, 2011-2013)

Key informants and focus group participants consistently mentioned mental health as a key health issue in the Communities of Concern. Issues included stress and depression resulting from coping with difficult living conditions, substance abuse and addiction resulting from self-medication, the challenges of coping with traumatic childhood experiences that were untreated, and similar. Access to mental health and behavioral services are discussed later in this report. One community member made this comment concerning the stress of living with limited resources: "*We have mental health issues; if you could imagine all of the bills that we have, and that's very stressful*" (FG_4). A key informant described the way mental health issues resulted in substance abuse:

> *A lot of people are just trying to kill their pain with prescription medications…they are trying to kill pain with narcotics and with substances and with anything, instead of dealing with it through therapy and ways that help them heal from the inside out…getting close to root cause* (KI_5).

Unintentional Injury

Unintentional injury is the fourth leading cause of death in the nation and the leading cause of death for children and teens.[20,21] National data show that most deaths related to unintentional injuries for young people result from motor vehicle accidents, followed by drowning, fire, falls, and poisoning. ED visits and hospitalizations related to unintentional injuries are included in this section of the report. In the health factors section, data on fatal traffic accidents, major crimes, and assault are detailed. Table 16 examines mortality, ED visits, and hospitalizations related to unintentional injuries.

As seen in the table, Sutter and Yuba counties had mortality and hospitalization rates for unintentional injury that exceeded the state benchmark. Further, rates for all Communities of Concern for mortality, ED visits, and hospitalization exceeded state benchmarks. Linda area residents (95901) had the highest mortality, ED visit, and hospitalization rates due to unintentional injury, with mortality rates over twice the state rate.

[20]US National Library of Medicine: MedlinePlus. (2016). *Death among children and adults*. Retrieved from: https://www.nlm.nih.gov/medlineplus/ency/article/001915.htm

[21] Centers for Disease Control and Prevention. (2015). *Leading Causes of Death*. Retrieved from: http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm

Table 16: Mortality, ED visit, and hospitalization rates due to unintentional injury compared to county, state and Healthy People 2020 benchmarks (rates per 10,000 population)

	ZIP Code	Mortality	ED Visits	Hospitalizations
Unintentional Injury	95901 – Linda	7.0	998.6	224.9
	95953 – Live Oak	3.7	703.8	183.6
	95961 – Olivehurst	4.2	855.7	174.5
	95991 – Yuba City	4.3	777.3	215.8
	Sutter County	*4.2*	*623.4*	*189.3*
	Yuba County	*6.8*	*894.5*	*203.6*
	CA State	*2.9*	*671.3*	*155.5*
	Healthy People 2020	*3.4*	--	--

(Sources: Mortality: CDPH, 2012; ED visits and hospitalizations: OSHPD, 2011-2013)

Cancers

Cancer is one of the leading causes of death in the nation, with more than 8% of the population receiving a cancer diagnosis at least once in their lifetime.[22] In an attempt to gain a better understanding of how the Communities of Concern are affected by cancer, the assessment included the examination of cancer incidence at the county level, as well as cancer mortality and ED visits and hospitalizations for specific causes of cancer. County level all-cause cancer incidence and mortality data were examined; however, ZIP code-level incidence data for all-cause cancer and specific cancers were not available for this assessment. ZIP code level data on ED visits and hospitalizations due to lung cancer, colorectal cancer, prostate cancer, and female breast cancer were selected for the assessment and are also detailed below. These specific cancers were chosen for this assessment because they are among the leading causes of new cases and/or of deaths of cancer among Americans today.

Cancer Incidence

Cancer incidence helps to communicate risk for cancer within the HSA, but data is hard to acquire at the sub-county level. Rates of new cases of cancer for the years 2008 through 2012 for both Sutter and Yuba counties are listed in Table 17. Rates are compared to a regional incidence rate and state rate.

Table 17: Age-adjusted incidence rates of cancer (invasive) for Sutter and Yuba County compared to state and regional benchmarks (rates per 10,000)

Indicator	Rate per 10,000
Sutter County	39.3
Yuba (and Sierra County combined)*	43.2
Sacramento Region	*44.2*
CA State All-Cause Cancer Incidence[+]	*41.8*

(Source: CA Cancer Registry, 2009-2013[23]) -
*The CA Cancer Registry combines Yuba and Sierra counties -

[22] Centers for Disease Control and Prevention. (2015). *Cancer*. Retrieved from: - http://www.cdc.gov/nchs/fastats/cancer.htm -

[23] *Age-Adjusted Invasive Cancer Incidence Rates by County in California, 2009 - 2013*. Based on December 2015 - Extract. California Cancer Registry. Cancer-Rates.info. Retrieved April 23, 2016, from http://cancer-rates.info/ca/ -

Incidence rates of all-cause cancer were lower Sutter and Yuba counties than in the Sacramento region and the State as a whole. However, a community health expert, when discussing cancer throughout the community, noted that cancer incidence varied across the community, with some areas experiencing rates disproportionate to other areas.

All-Cause Mortality and Lung Cancer

An all-cause cancer mortality rate[24] shows the overall effect of cancer as an illness across the RRMC/SSHNV Communities of Concern. Unfortunately, data on death due to specific cancers is not available at the sub-county level, and therefore are not included in this assessment. However, ED visits and hospitalization rates due to lung cancer are reported in Table 18, followed by rates for prostate, colorectal, and female breast cancer in Table 19.

Table 18: Mortality rates for all-cause cancer, and ED visits and hospitalization rates for lung cancer compared to county, state, and Healthy People 2020 benchmarks (rates per 10,000 population)

ZIP Code	Mortality: (All-Cause Cancer)	ED Visits: Lung Cancer	Hospitalizations: Lung Cancer
95901 – Linda	13.9	3.4	11.9
95953 – Live Oak	14.0	--	9.7
95961 – Olivehurst	11.7	2.3	6.2
95991 – Yuba City	20.9	2.8	11.0
Sutter County	*17.4*	*2.5*	*11.4*
Yuba County	*14.0*	*2.7*	*9.5*
CA State	*15.4*	*2.7*	*8.0*
Healthy People 2020	*16.1*	--	--

(Source: Mortality: CDPH, 2012; ED visits: OSHPD, 2011-2013)

Yuba City (95991) residents died due to all-cause cancer at higher rates than any other Community of Concern. Linda area (95901) residents visited the ED for lung cancer more frequently than any other Community of Concern. All Communities of Concern except the Olivehurst area (95961) exceeded the state benchmark for hospitalizations due to lung cancer.

Cancer – Female Breast, Colorectal, and Prostate

A lack of access to primary health care greatly affects a community's risk of late diagnosis of cancer, especially those cancers in which early diagnosis and prevention are vital to reducing increased related morbidity and mortality. Table 19 examines ED visit and hospitalizations related to female breast cancer, colorectal cancer (male and female) and prostate cancer.

Sutter and Yuba counties had rates in all categories that were lower than the state rate. When benchmarking rates against county rates, all Communities of Concern had rates for ED visits due to female breast cancer that were higher than the Sutter County benchmark (data were not available for 95953). Both the Linda (95901) and Yuba City (95991) areas had rates in four of the six categories that exceeded at least one county benchmark rate.

[24]American Cancer Society. (2014). *Cancer Facts and Figures 2014*. Retrieved from: http://www.cancer.org/acs/groups/content/@research/documents/webcontent/acspc-042151.pdf

Table 19: Rates of ED visits and hospitalizations for female breast cancer, colorectal cancer, and prostate cancer compared to county and state benchmarks (rates per 10,000 population)

ZIP Code	ED Visits Female Breast Cancer	Hospitalizations Female Breast Cancer	ED Visits Colorectal Cancer	Hospitalizations Colorectal Cancer	ED Visits Prostate Cancer	Hospitalizations Prostate Cancer
95901	5.2	10.0	--	5.8	4.0	10.9
95953	--	10.3	--	6.5	--	--
95961	4.4	10.9	1.4	5.3	--	9.1
95991	3.8	11.5	1.6	5.3	2.7	13.8
Sutter	*3.6*	*10.9*	*1.0*	*5.4*	*3.5*	*11.9*
Yuba	*5.2*	*11.0*	*1.3*	*5.8*	*3.5*	*10.8*
CA State	*6.6*	*11.1*	*1.9*	*6.5*	*5.8*	*12.4*

(Source: OSHPD, 2011-2013)

Respiratory Health – Chronic Obstructive Pulmonary Disease and Asthma

Chronic Obstructive Pulmonary Disease (COPD)

COPD is a progressive lung disease that makes it difficult to breathe and refers to the two main conditions of emphysema and chronic bronchitis.[25] Tobacco smoking is the biggest risk factor for COPD. In the US approximately 6.8 million people have COPD. In an effort to understand the impact of respiratory illness in the Communities of Concern, mortality rates for Chronic Lower Respiratory Disease (CLRD) are presented below with rates of ED visits and hospitalizations related to COPD. Rates of ED visits and hospitalizations due specifically to asthma are examined in Table 20.

Table 20: ED visit and hospitalization rates due to COPD compared to county, state and Healthy People 2020 benchmarks (rates per 10,000 population)

	ZIP Code	Mortality CLRD	ED Visits COPD	Hospitalizations COPD
Chronic Lower Respiratory Disease (CLRD) & Chronic Obstructive Pulmonary Disease (COPD)	95901 – Linda	7.1	247.9	207.3
	95953 – Live Oak	3.1	108.5	140.8
	95961 – Olivehurst	3.4	164.3	182.1
	95991 – Yuba City	5.3	137.6	162.3
	Sutter County	*4.7*	*101.9*	*131.5*
	Yuba County	*5.7*	*188.6*	*188.5*
	CA State	*3.5*	*74.6*	*89.1*
	Healthy People 2020	--	*56.8*	*50.1*

(Sources: Mortality: CDPH, 2012; ED visits and hospitalizations: OSHPD, 2011-2013)

Sutter and Yuba counties had rates in all categories that exceeded the state benchmark. Two Communities of Concern—Linda (95901) and Yuba City (95991)—had mortality rates that exceeded benchmarks. All Communities of Concern had ED visit and hospitalization rates that exceeded

[25] National Heart, Lung and Blood Institute. (2013). *What is COPD?* Retrieved from: http://www.nhlbi.nih.gov/health/health-topics/topics/copd

benchmarks, and some notably so. For example, Linda area (95901) residents visited the ED for COPD are triple the rates than California residents as a whole.

Asthma

Asthma is a major health issue in the nation. National data indicate that one in 12 adults and one in 11 children have asthma.[26] Table 21 examines ED visits and hospitalization due to asthma (all ages).

Table 21: ED visit and hospitalization rates due to asthma compared to county and state benchmarks (rates per 10,000 population)

	ZIP Code	ED Visits	Hospitalizations
Asthma	95901 – Linda	308.0	122.7
	95953 – Live Oak	87.7	76.7
	95961 – Olivehurst	248.4	97.9
	95991 – Yuba City	206.3	102.2
	Sutter County	*144.7*	*89.6*
	Yuba County	*255.2*	*107.4*
	CA State	*149.1*	*68.7*

(Source: ED visits and hospitalizations: OSHPD, 2011-2013)

Yuba County had rates that exceeded those of both neighboring Sutter County, as well as the state. All Communities of Concern had rates that exceeded at least one benchmark with only one exception—the Live Oak area (95953). The Linda area (95901) had rates for ED visits that were over twice the Sutter County and state rate. Further, Linda area residents were hospitalized for asthma more than residents in any other Community of Concern.

Both key informants and focus group participants pointed to respiratory issues as a key health concern for the HSA Communities of Concern, many brought on by the location of the HSA (Sacramento Valley), as well as the amount of agricultural activities in the community. Some agricultural workers pointed to working conditions where workers are exposed to pesticides. A participant in a focus group described their belief of how agricultural-related chemicals impact the community and said this: "*We've got crop dusters all around that river. All the chemicals are going to wash into the river*" (FG_3). A key informant described the way asthma is worsened in agricultural communities:

> *[Asthma] is aggravated with the agricultural activities. Which I'm not suggesting should be halted because that's what we thrive on, but maybe the things that have gone into the soil that are now in the air need to be continued to be addressed* (KI_3).

Dental Health

Dental health is very important for the overall health of an individual. Access to dental care was not noted as a significant health issue in this CHNA; however, both key informants and focus group participants mentioned oral health as a health concern. Though dental insurance was reinstated for adults in 2014 under Medi-Cal, the data presented here is from 2013. Clear geographic disparities were

[26] Centers for Disease Control and Prevention. (n.d.) *Asthma Fact Sheet*. Retrieved from: http://www.cdc.gov/asthma/impacts_nation/asthmafactsheet.pdf

evident among the ZIP code Communities of Concern in comparison to the county and state benchmarks. Table 22 provides data on ED visits and hospitalizations related to dental issues.

Table 22: ED visit and hospitalization rates due to dental issues compared to county and state benchmarks (rates per 10,000 population)

	ZIP Code	ED Visits	Hospitalizations
Dental	95901 – Linda	109.3	9.9
	95953 – Live Oak	53.2	7.2
	95961 – Olivehurst	64.5	8.3
	95991 – Yuba City	65.6	9.7
	Sutter County	*47.4*	*8.6*
	Yuba County	*81.9*	*9.4*
	CA State	*41.8*	*7.9*

(Source: OSHPD, 2011-2013)

Yuba County had ED visit rates that were almost twice the state rate. Linda area residents (95901) visited the ED due to dental issues at over twice the rate than state residents as a whole. Live Oak area residents (95953) had the lowest ED visit and hospitalization rates among all Communities of Concern.

Health Factors in Communities of Concern – Health Behaviors, Clinical Care, Social and Economic Factors, and the Physical Environment

Health factors are those that intersect with people in their everyday lives. Multiple health factors interconnect to increase risk for a single health outcome or multiple health outcomes, as presented in the previous section. Health factors can be seen as the upstream drivers that must be changed to improve downstream health outcomes that affect the community. Much like the Health Outcomes section of this report, health factors presented in this section are organized in accordance with the conceptual model as presented previously.

Health Behaviors – Tobacco Use, Diet and Exercise, Alcohol and Drug Use, and Sexual Activity

Tobacco Use

Tobacco use is a risk behavior that is commonly addressed through educational interventions, and a major contributor to most of the leading causes of death in the US, especially heart disease, COPD, asthma, and cancer. Though smoking rates are not available for the RRMC/SSHNV service area, these rates are available for Sutter and Yuba counties. Data from the California Health Interview Survey (CHIS) showed that 11.5% of Sutter County and 19.2% of Yuba County residents were current smokers, compared to the state rate of 10.8%.

Diet and Exercise – USDA defined Food Deserts, mRFEI, and Park Access

Obesity

Consideration of diet and exercise data for this health assessment also included an examination of obesity data. Though obesity is a clear outcome of poor dietary choices and a lack of adequate exercise, it is also a contributor to most of the morbidity and mortality health conditions mentioned in the previous section of the report. Table 23 displays the percentage of adults overweight and obese for Sutter and Yuba counties as compared to the state. Fewer Sutter County residents were overweight

than both neighboring Yuba County and the state as a whole. However, both Sutter and Yuba counties had a greater percent of residents that were obese that the state as a whole.

Table 23: Self-reported BMI for the determination of percent overweight and obese for Sutter and Yuba County in comparison to the state benchmark rate

	Percent Overweight	Percent Obese
Sutter County	30.4%	32.7%
Yuba County	38.6%	39.1%
CA State	*35.5%*	*27.0%*

(Source: California Health Interview Survey, 2014).

Food Deserts

The USDA defines food deserts as: "urban neighborhoods and rural towns without ready access to fresh, healthy, and affordable food. Instead of supermarkets and grocery stores, these communities may have no food access or are served only by fast food restaurants and convenience stores that offer few healthy, affordable food options."[27] The lack of access to healthy food results in a poor diet and can lead to higher levels of obesity and other diet-related diseases, such as diabetes and heart disease. The USDA further describes a food desert as "a census tract with a substantial share of residents who live in low-income areas that have low levels of access to a grocery store or healthy, affordable food retail outlet."[28] Figure 9 identified food deserts for the RRMC/SSHNV Communities of Concern.

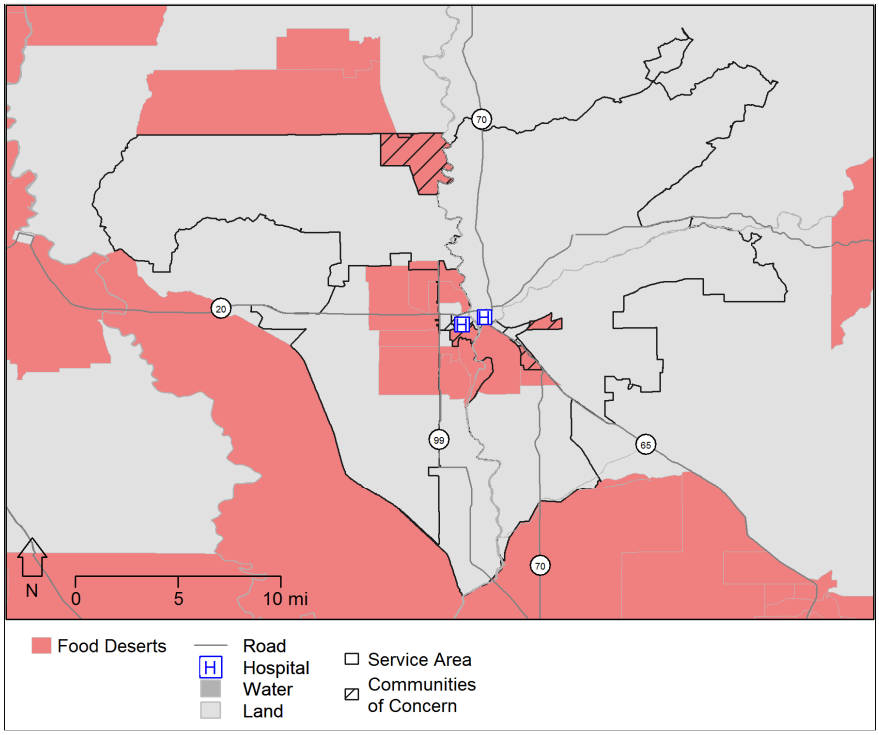

Figure 9: USDA defined food deserts for RRMC/SSHNV Communities of Concern

[27] US Department of Agriculture. (n.d.) *Food Deserts*. Retrieved from: https://apps.ams.usda.gov/fooddeserts/fooddeserts.aspx

[28] US Department of Agriculture. (n.d.) *Food Deserts*. Retrieved from: https://apps.ams.usda.gov/fooddeserts/fooddeserts.aspx

There were food deserts in each Community of Concern in the RRMC/SSHNV HSA. The entire community of Live Oak was a designated food desert, while large portions of Linda, Olivehurst, and Yuba City were designated food deserts.

Modified Retail Food Environment Index (mRFEI)

The mRFEI (modified Retail Food Environment Index) is an index that represents two aspects of food availability: both the presence of food outlets within a ZIP code, as well as the relative abundance of healthier food outlets. Negative mRFEI values occur in areas with no food outlets. All other values report the percentage of healthier food outlets, out of all food outlets, in the ZIP code. Figure 10 shows the mRFEI for the RRMC/SSHNV HSA. Lighter areas indicate poor or no access to healthy food outlets and darker areas indicate greater access to healthy food outlets.

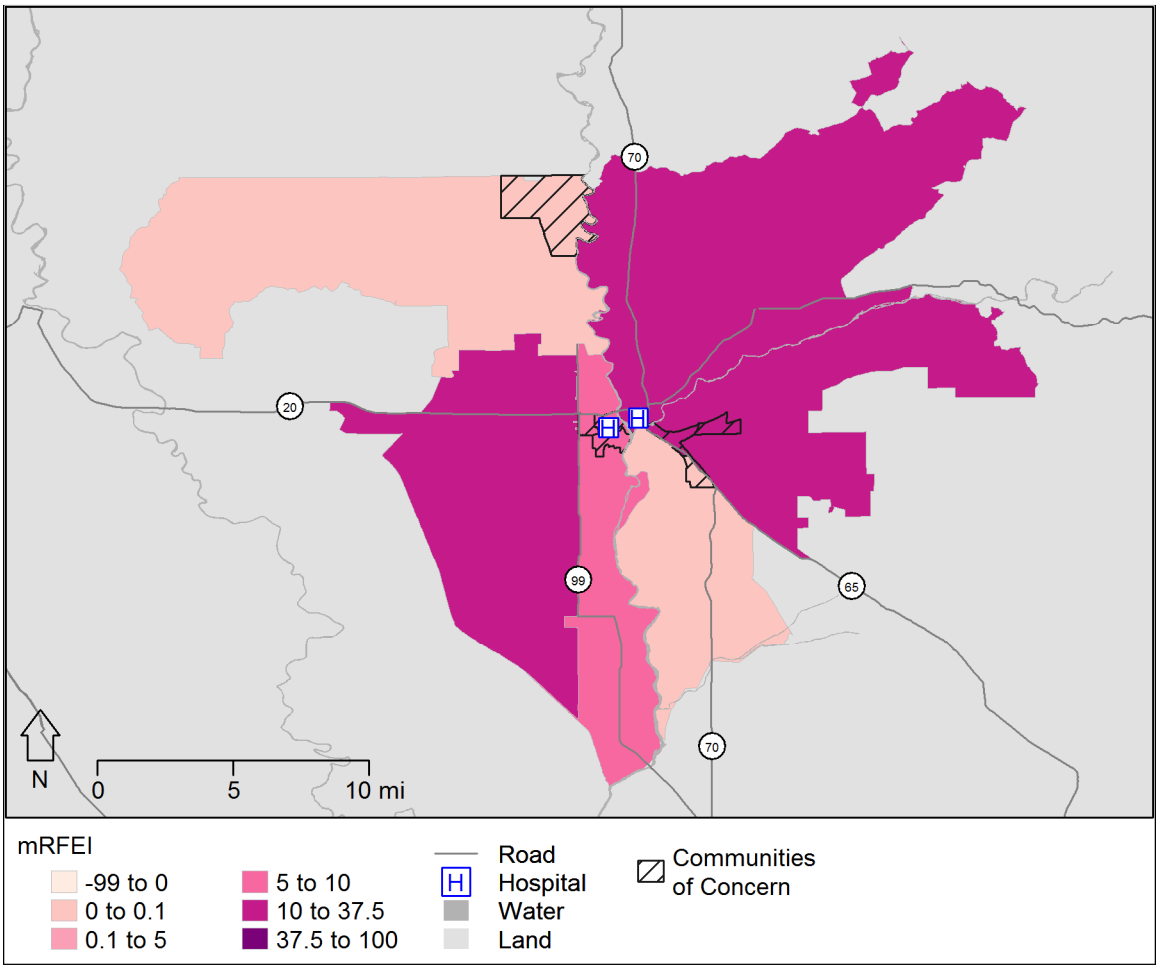

Figure 10: Modified Retail Food Environment Index (mRFEI) for the RRMC/SSHNV HSA

When viewed at the ZIP code level, ZIP codes 95953 (Live Oak area) and 95961 (Olivehurst area) had the lowest mRFEI scores, and were the communities within the HSA with the lowest availability of fresh food. These were followed by ZIP code 95991 (Yuba City area), with the next lowest level of fresh food availability, and finally ZIP code 95901 (Linda area).

Key informants and focus group participants frequently mentioned the limited availability of fresh foods as a challenge to living a healthier life for residents living in the Communities of Concern.

Many community residents commented on the higher costs of fresh foods, others pointed to their perceptions of large number of fast food restaurants in the area. When discussing the perception associated with the cost of fresh foods, a key informant made this comment:

> *Access to healthy food is a big deal. People tend to think the healthy food is more expensive, so they just don't even, I don't know if they don't even try it, or what, but that seems to be one of things that they think is more expensive* (KI_1).

Another key informant described the challenges of finding fresher foods and the convenience of accessing less healthy food options:

> *There are a lot of areas in the Yuba/Sutter community that are considered a food desert, and there's not any access to fresh fruit and vegetables. So if you are a poor person or you're a senior who's a shut in you don't have access to it. You might have a 7-Eleven on the corner but they don't have the foods that you need to healthy. And getting on the bus and going to the grocery store is an all-day process* (KI_3).

A key informant described the way convenience store type foods had become a staple in some homes: "*People give their kids two bucks and say go get dinner. And they get Cheetos or whatever is fried in those [convenience] stores, and that's what they think dinner is*" (KI_5). Yet another discussed the lack health education as a contributor to poor food choices: "*There are so many fast food places, and without knowledge to prepare a healthy meal, the choice is just quickly go through a drive-through*" (KI_9).

Park Access

Access to recreational areas is a contributor to whether or not people will be physically active. Figure 11 shows the percent of the population by ZIP code in the service area that live within one-half mile of a recreational park. The lighter colors denote fewer residents with nearby park access and darker colors show more residents living within one-half mile of a park.

As displayed in the figure, among all Communities of Concern ZIP code 95953 (Live Oak area) had the lowest percentage of residents living within ½ mile of a park, whereas ZIP code 95901 (Linda area) had the highest. ZIP code 95991 (Yuba City area) had 12.6 to 23.5% of residents residing within ½ mile of a park. Finally, ZIP code 95901 (Linda area) had 23.5 to 38.5% of all residents living within ½ mile of a park.

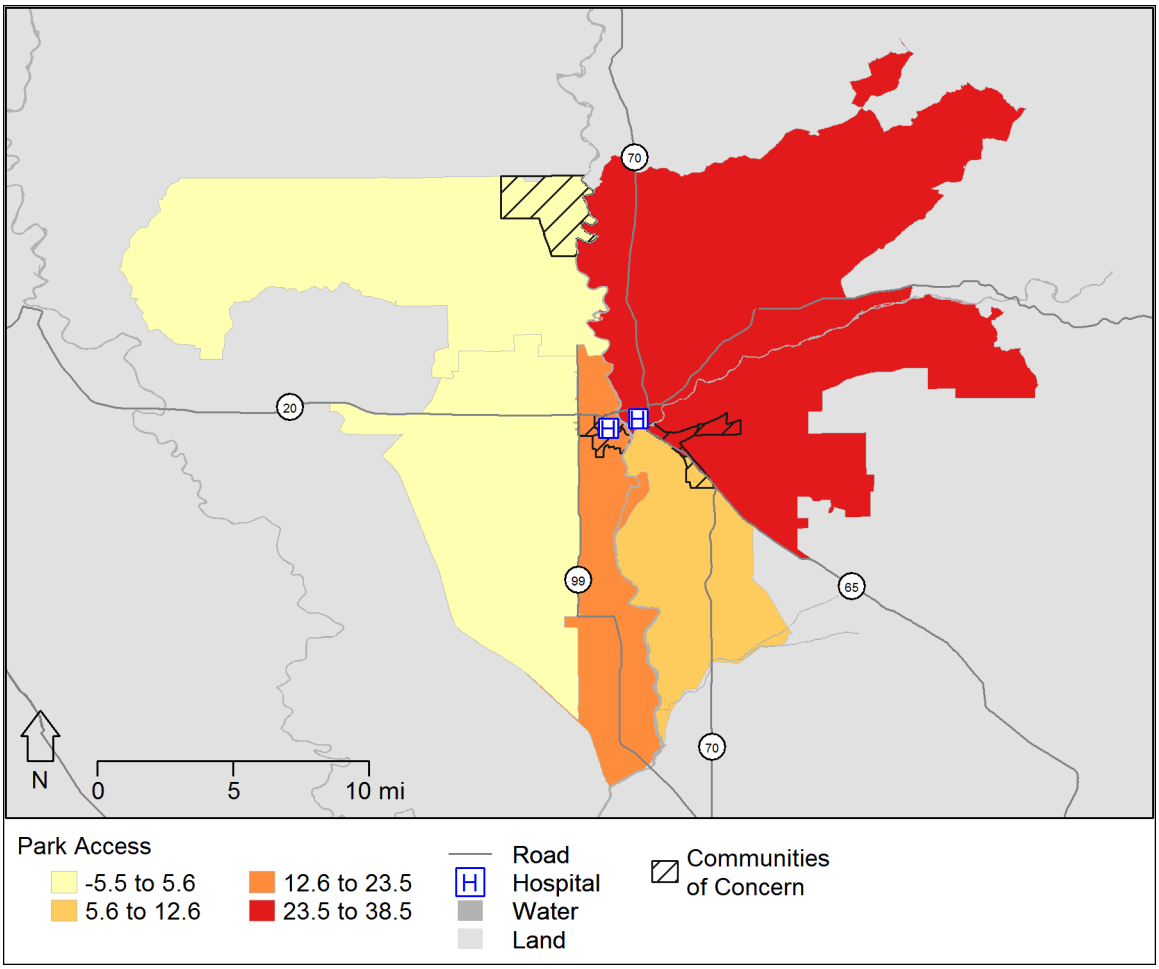

Figure 11: Percent of population in a ZIP code living within ½ mile of a park

Alcohol & Drug Use

Adult Binge Drinking

Reported rates of binge drinking are not available at the sub-county level for the RRMC/SSHNV HSA. However, CHIS data indicates that the percentage of respondents reporting binge drinking at the county level is below the state level reported for binge drinking in 2014. 27% of Sutter County adults and 28.1% of Yuba County adults reporting engaging in binge drinking in the past year, in comparison to the state rate of 32.6%.

Table 24: Self-reported adult binge drinking in the past year

	Percent Binge Drinking
Sutter County	27.0%
Yuba County	28.1%
CA State	**32.6%**

(Source: California Health Interview Survey, 2014) -

Substance Abuse

Rates of ED visits and hospitalizations related to substance abuse are not direct measures of prevalence of substance abuse in the ZIP codes, but rather provide insight into the struggle with these issues across the HSA. Table 25 shows the rates for ED visits and hospitalizations by ZIP code due to substance abuse.

Table 25: ED visit and hospitalization rates due to substance abuse issues compared to county and state benchmarks (rates per 10,000 population)

	ZIP Code	ED Visits	Hospitalizations
Mental Health: Substance Abuse	95901 – Linda	912.6	324.6
	95953 – Live Oak	213.8	159.1
	95961 – Olivehurst	573.4	233.5
	95991 – Yuba City	612.1	260.5
	Sutter County	*399.9*	*193.0*
	Yuba County	*686.4*	*269.8*
	CA State	*256.3*	*145.8*

(Source: OSHPD, 2011-2013)

Both Sutter and Yuba counties had rates that were higher than the state rate. All Communities of Concern exceeded benchmarks for ED visits and hospitalizations due to substance abuse with one exception—Live Oak ED visits. Linda (95901) by far had the highest rates among all Communities of Concern. For example, ED visits for Linda area residents resulting from substance abuse were three-and-a-half times greater than the state as a whole. Further, hospitalizations due to substance abuse were over twice the state rate. Second to Linda, Yuba City area (95991) residents had the second highest rates for both ED visits and hospitalizations due to substance abuse.

Key informants and focus group participants pointed to mental illness, and specifically substance abuse and addiction, as a key health issues in the Communities of Concern. This topic is discussed at greater length in the section on Mental Health (the section begins on page 41 of this report).

Sexual Activity – Teen Birth Rate and STI Rates (including Chlamydia, Gonorrhea, and HIV/AIDS)

Teen Birth Rate

The teen birth rate (births to women under the age of 20) is an indicator used in this assessment to examine sexual behavior throughout the HSA. The national rate of teen births (age 15-19) currently is 26.5 per 1,000 live births.[29] The California state rate was 28.3 per 1,000 live births, and the Sutter County and Yuba County rates were 29.5 and 41.0 per 1,000 live births, respectively. Teenage births pose several health issues. Teen mothers, especially those who are single, are more likely to have dropped out of high school and are less able to support themselves; a high percentage end up on public assistance. In fact, half of all current welfare recipients had their first child as a teenager.[30] Figure 12 shows the teen birth rate for RRMC/SSHNV HSA.

[29] Centers for Disease Control and Prevention. (2015). *Teen Births*. Retrieved from: http://www.cdc.gov/nchs/fastats/teen-births.htm

[30] Sawhill, I.V. (2001). *What can be done to reduce teen pregnancy and out of wedlock births?* Retrieved from: http://www.brookings.edu/research/papers/2001/10/childrenfamilies-sawhill

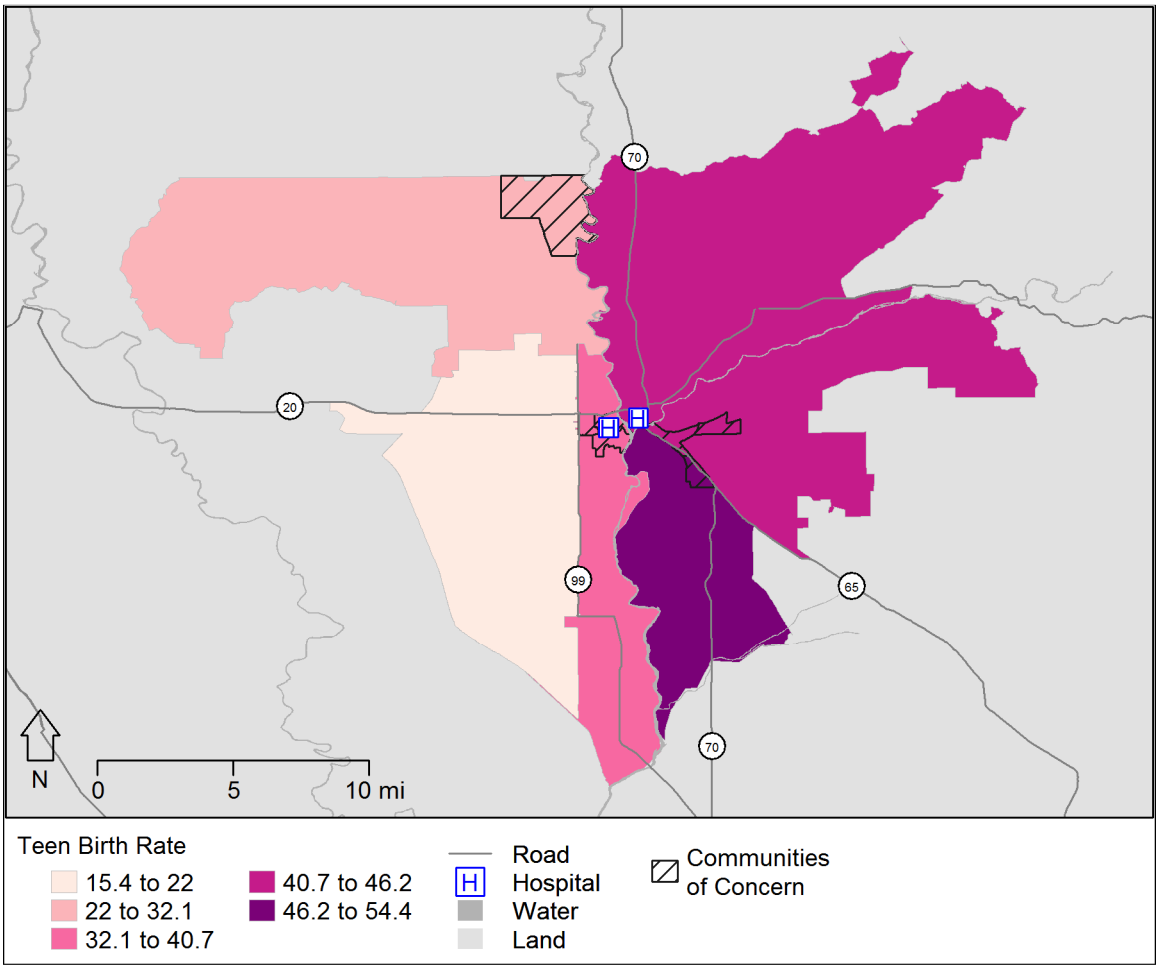

Figure 12: Teen birth rate for 15-19 year olds per 1,000 live births

ZIP code 95961 (Olivehurst area) had the highest teen birth rate among all Communities of Concern, followed by the Linda area (95901). The Yuba City area (9591) had the next highest rates, and the Live Oak area (95953) had the lowest rates among all Communities of Concern.

Sexually Transmitted Infections (STIs) and HIV/AIDS

Rates of STIs, including chlamydia, gonorrhea, and HIV, help describe engagement in risky sexual behavior in the Communities of Concern. Given that STIs are largely preventable, knowing which community members are most infected with STIs helps with targeting interventions for treatment and prevention. Table 26 displays prevalence rates for chlamydia and gonorrhea among 10-19 year olds in Sutter and Yuba counties compared to the state benchmark. Rates were below the state comparative benchmark for gonorrhea and chlamydia. Table 27 displays ED visits and hospitalizations related to STI, and those specific to HIV/AIDS.

Table 26: Prevalence of chlamydia and gonorrhea among 10-19 year olds in Sutter and Yuba counties compared to the state rate (per 10,000)

STI Rates[31]	Chlamydia Rate	Gonorrhea Rate
Sutter County	43.9	2.8
Yuba County	49.0	4.5
CA State	*68.4*	*11.2*

(Source: kidsdata.org)

Table 27: ED visit and hospitalization rates due to STIs and HIV/AIDS compared to county and state benchmarks (rates per 10,000 population)

	ZIP Code	ED Visits: STIs	Hospitalizations: STIs	ED Visits: HIV/AIDS*	Hospitalizations: HIV/AIDS*
Sexually Transmitted Infections	95901 – Linda	1.7	2.2	--	1.6
	95953 – Live Oak	--	--	--	--
	95961 – Olivehurst	1.9	3.2	--	--
	95991 – Yuba City	1.3	2.9	--	0.9
	Sutter County	*1.0*	*1.5*	*0.2*	*0.5*
	Yuba County	*1.5*	*2.2*	*0.7*	*1.1*
	CA State	*3.2*	*4.6*	*2.0*	*3.4*

(Source: OSHPD, 2011-2013) -
*HIV/AIDS is considered a subcategory of STI in the ICD 9 diagnostic codes -

Data were not available for ZIP code 95953 (Live Oak area), nor were data available for ED visits due to HIV/AIDS for any Community of Concern. (The lack of availability was due to low counts). Further, in all categories both the Sutter and Yuba County rates were lower than the state benchmarks, and some notably so. However, for those rates that were available, in each instance these exceeded a county benchmark with one exception—hospitalizations due to STIs for the Linda area (95901) residents.

Clinical Care – Access to Care and Quality of Care

Health Professional Shortage Areas – Primary Care, Mental Health, and Dental

Health Professional Shortage Areas (HPSAs) are designated by the US Government Health Resources and Services Administration (HRSA) as having a shortage of primary medical, dental, or mental Health Professionals. These shortages may be geographic (e.g., a county or service area), demographic (e.g., low income population), or institutional (e.g., comprehensive health center, federally qualified health center, or other public facility).[32] The data that follow includes HPSAs for primary care, mental health and dental care providers in the HSA, and specifically the ZIP code Communities of Concern.

[31] Lucile Packard Foundation for Children's Health. (n.d.). *Sexually Transmitted Infections, by Age Group*. Data from the California Department of Public Health 2010-2014. Retrieved from: http://www.kidsdata.org
[32] Health Resources and Services Administration. (n.d.). *Primary medical care HPSA: Designation Overview.* Retrieved from: http://bhpr.hrsa.gov/shortage/hpsas/designationcriteria/primarycarehpsaoverview.html

Health Professional Shortage Area – Primary Care

Figure 13 displays the primary care HPSAs for the RRMC/SSHNV HSA.

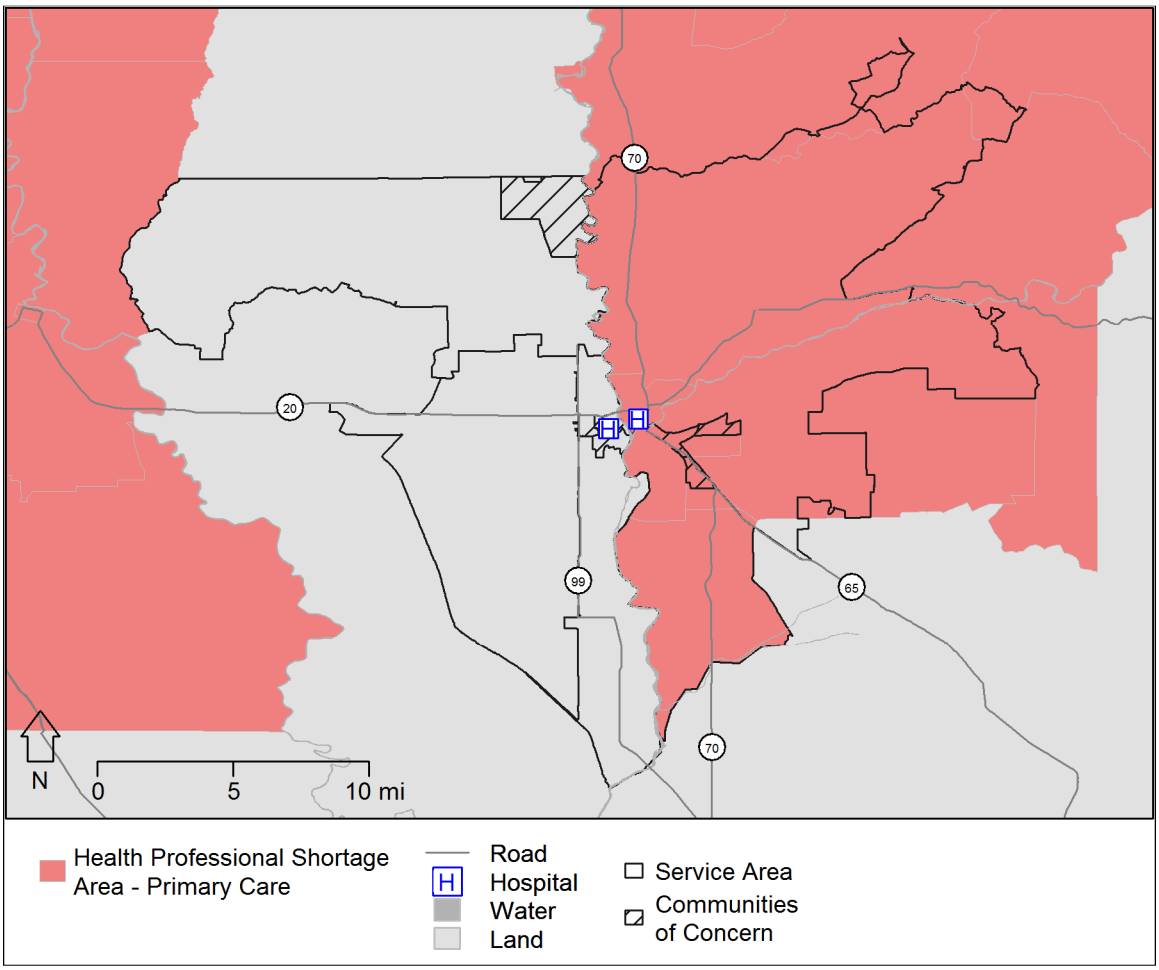

Figure 13: Primary care HPSAs for the RRMC/SSHNV HSA

Both the Linda and Olivehurst areas were designated as primary care HPSAs.

Both key informants and focus group participants consistently mentioned the challenges of accessing primary care as a health issue for the Communities of Concern. Key informants discussed obstacles such as provider shortages, the complexity of navigating the system, the limits of some insurance plans and low reimbursement rates, as well as the belief that health services for low-income populations were substandard in quality. One key informant discussed their experience in helping a family member access services as a Medi-Cal recipient:

> *…My Dad he lives in Yuba County and we had to use a FQHC. I took him. I usually take an hour to go to my doctor; I had to take a day. That's ridiculous, I had to take the day off to go take my Dad…So I'm sorry I had a horrible experience and the service that my Dad received I didn't care for; questions were not answered. I just walked away feeling frustrated. And what do I do?* (KI_2).

Community residents discussed the costs associated with treatment as an impediment to them seeking care. One member of a focus group said this:

> *If we don't have insurance we are afraid that if we go [to get treatment] we are going to get a huge bill afterwards…we try the pharmacy, we go and get over-the-counter medicine. And if this doesn't work, then we have to go to a clinic or to the ER, but it is very difficult to pay so much money for the care* (FG_5).

The same member also discussed the lack of insurance as a barrier to a more preventative approach to healthcare: "*Listen, if we had insurance we would be going to a doctor and get checkups and stuff.*" Another community member discussed the challenges of accessing care with certain types of insurance plans:

> *You name insurance and they are like, no, we don't take that. If it's not group or outside of Covered California, they don't want it and then you have to go as far as they take you, up North or this way or that way. And then insurance, it's okay, but going the distance is what's not good* (FG_2).

Last, another member of this same focus group discussed the challenges of getting an appointment and associated costs of treatment at a local community health center: "*They are too busy. You can't get an appointment. They are not cheap…usually costs $100 or $200."*

Key informants and community residents also discussed the challenges of accessing specialty care in the community. One community member said this: "*If you want to see a specialists you've got to wait six weeks*" (FG_3). Another community member discussed the difficulty of accessing specialty care while being covered with certain insurance plans. One resident told this story of getting their child to a specialist: "*You know, I've been as far as UCSF and Oakland Children's Hospital because the insurance I have; nobody wants to take it here local*" (FG_2). Last, a key informant, when asked about priority health needs for the Communities of Concern, said: "*I think the biggest one is access to specialty care…specialty care is really difficult*" (KI_8).

Health Professional Shortage Area – Mental Health

Figure 14 displays census tracts within the HSA that were identified as federally designated mental health HPSAs.

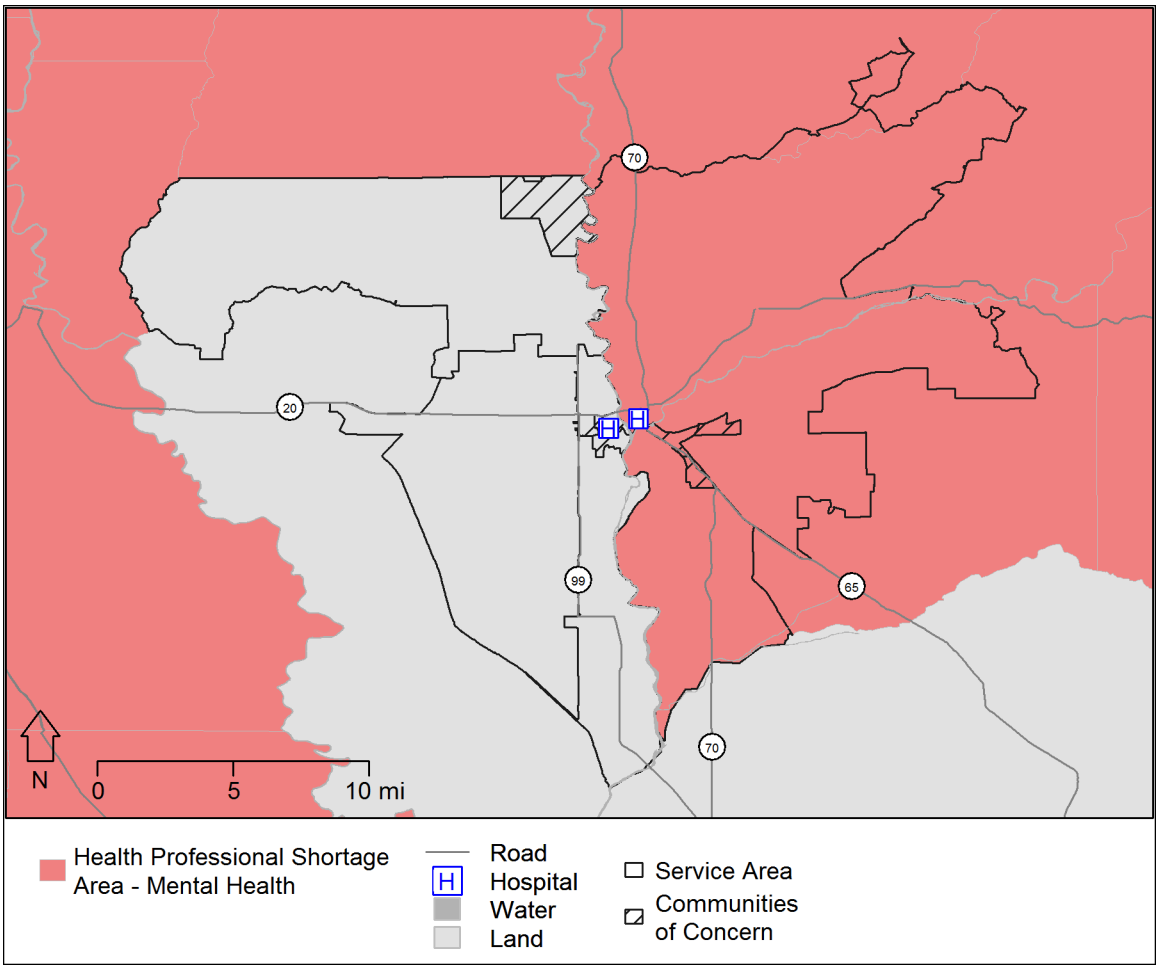

Figure 14: Mental health HPSAs for the RRMC/SSHNV HSA

Mental health outcomes have been discussed earlier in this report. This section notes the designated mental health HPSA areas in the Communities of Concern. Similar to the primary care HPSAs noted earlier, both the Linda and Olivehurst areas were designated as mental health HPSAs.

Key informants and community residents spoke of the challenges many residents faced when trying to get mental health services in the Communities of Concern. They discussed the limited amount of mental health and rehabilitation services as well as the costs of these services. One community member made this comment: "*If I were to take my child to get mental health care, it is very expensive. I was told that it is very expensive and he has Medi-cal coverage*" (FG_4). Another key informant discussed the experiences of an relative when accessing the behavioral health services in the community: "*…she was hospitalized five times last year. Then, finding a counselor that takes Medi-Cal. She doesn't want to go to mental health because of the stigma. No only that, but the services are not good, they're just not* (KI_1).

Health Professional Shortage Area – Dental Care

There were no federally designated HPSAs for dental care in the RRMC/SSHNV HSA. ED visits and hospitalizations (2013) related to dental care were provided earlier in this report, and clear geographic disparities were seen. However, as mentioned previously, these data were from a period prior to reinstatement of adult dental services under Medi-Cal coverage.

Health Insurance Status

With the passage of the ACA, the overall number of Californians without any type of health insurance has decreased. However, many residents living within the RRMC/SSHNV HSA remain uninsured, and many of these residents are particularly vulnerable. Table 28 displays the percentage of uninsured residents in the RRMC/SSHNV Communities of Concern.

Table 28: Percent uninsured by ZIP code compared to county and state benchmarks

	ZIP Code	Percent Uninsured
Uninsured Rates	95901 – Linda	17.8
	95953 – Live Oak	29.2
	95961 – Olivehurst	14.9
	95991 – Yuba City	19.1
	Sutter County	*18.9*
	Yuba County	*16.6*
	CA State	*17.8*

(Source: US Census, 2013)

All Communities of Concern except the Olivehurst area (95961) had uninsured rates that exceeded a benchmark. However, it should be noted that uninsured rates have continued to decrease as a result of the implementation of the ACA. For example, The Henry J. Kaiser Family Foundation reported a 30% decrease in the number of uninsured residents of California between years 2013-2014.[33]

Quality of Care – Total Hospitalization and Emergency Department Utilization and Prevention Quality Indicators

Emergency Department and Hospital Utilization

Total hospitalization and ED visit rates can shed light on the overall health status of a community, and describe the state of the healthcare system, including access to primary healthcare services. In some instances, community residents are unable to obtain care in an ambulatory setting. Some obtain primary care in local hospital EDs, and others may allow a health condition to become acute, and then seek care in the ED. In some instances residents are hospitalized for these conditions. Figures 15 and 16 show the distribution of ED and hospitalization utilization by RRMC/SSHNV HSA residents.

[33] The Henry J. Kaiser Family Foundation. *State Health Facts: Percent Change in Number of Uninsured by Age, 2013-2014*. Retrieved from: http://kff.org/other/state-indicator/percent-change-in-uninsured-rate-by-age-2013-2014/

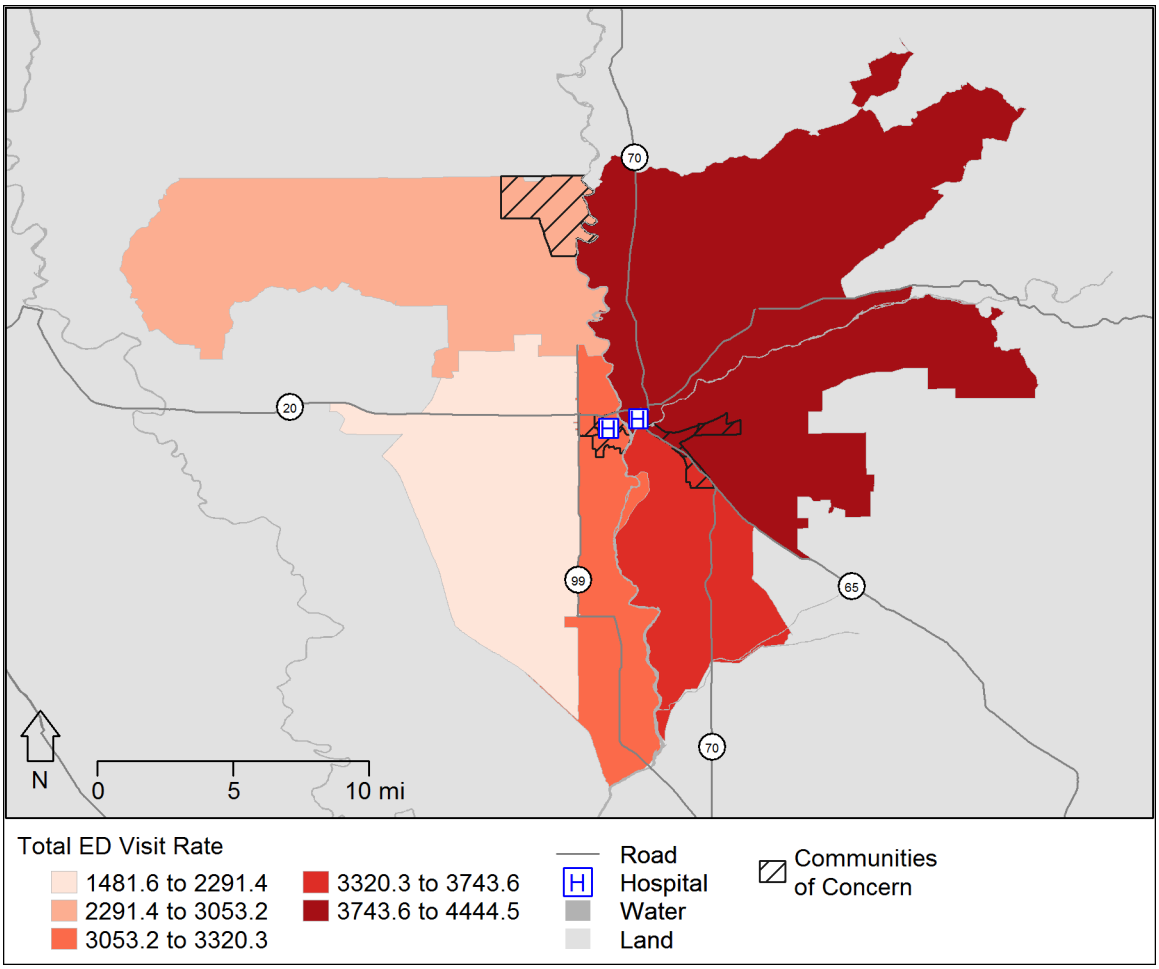

Figure 15: Total ED visit rates for RRMC/SSHNV HSA

Figure 15 displays the distribution of total ED visit rates across the RRMC/SSHNV HSA. ZIP code 95901 (Linda area) had the highest ED utilization rate, followed by ZIP code 95961 (Olivehurst area). Recall earlier in this report that these two communities were designated Health Professional Shortage Areas for both primary and mental health. ZIP code 95991 fell into the third highest quintile, followed by 95953 (Live Oak area).

Community residents referenced their use of emergency services as a result of having no or limited access to healthcare. One community resident described how care is avoided due to the costs and challenges they experienced in accessing care, resulting in health conditions becoming more acute: "*One would not see a doctor until you are very ill. We just don't go to a doctor until we are very sick. Then we go to a clinic or to the ER…"* (FG_4).

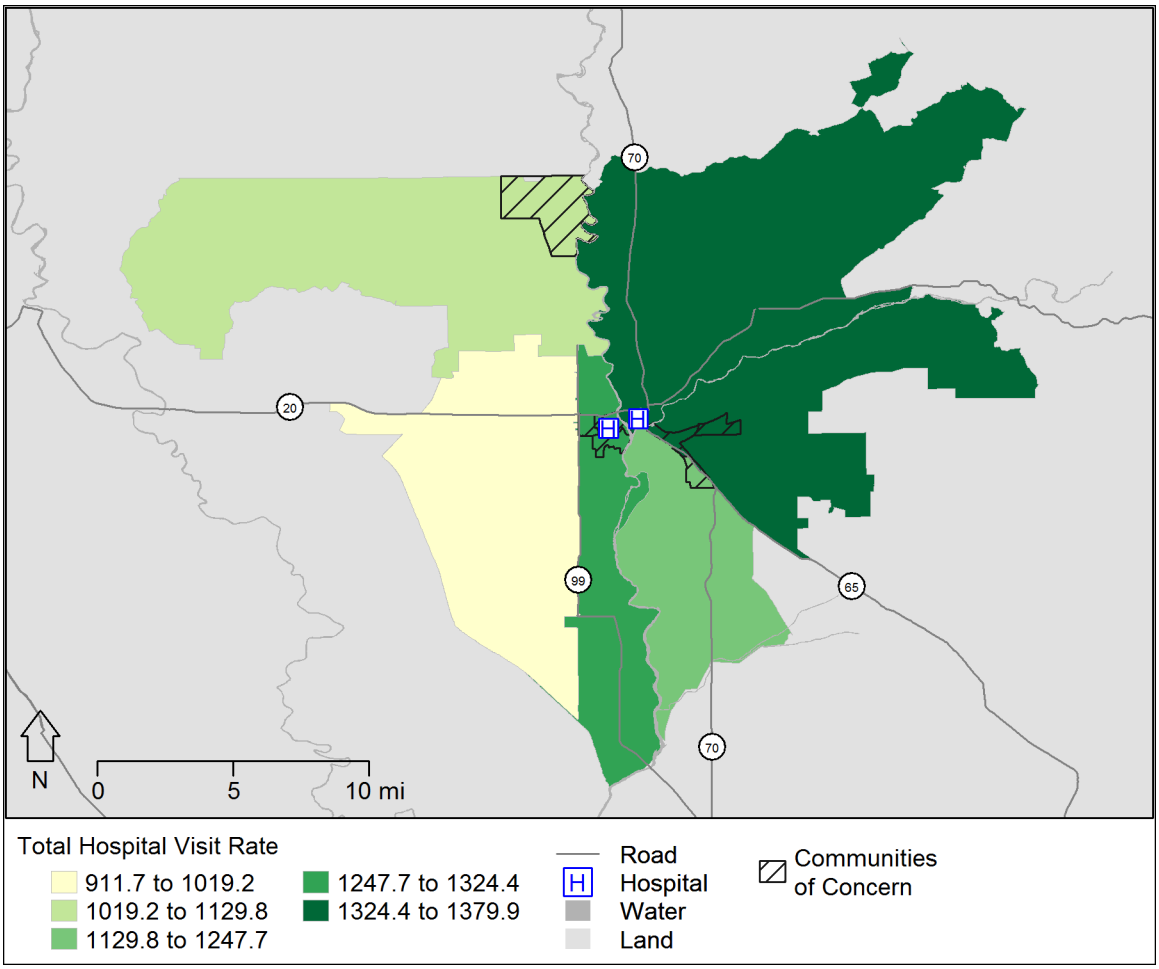

Figure 16: Total hospitalizations for RRMC/SSHNV HSA

The total hospitalization rates for the HSA were highest in ZIP code 95901 (Linda area), followed by 95991 (Yuba City area). ZIP code 95961 (Olivehurst area) had the next high rates among the Communities of Concern, and Live Oak (95953) had the lowest.

Preventable Hospitalizations – Prevention Quality Indicators

The Prevention Quality Indicators (PQIs) were developed by the Agency for Healthcare Research and Quality (AHRQ). The 13 identified PQIs are used to assess the quality of care for conditions for which good outpatient care could prevent the need for hospitalization, or when early intervention could prevent complications or decrease disease severity. These conditions are also known as ambulatory-sensitive conditions (ASCs) and are sometimes referred to as preventable hospitalizations.[34] Based on hospitalization rates, these indicators provide insight on the community health care system or services outside the hospital setting, such as access to quality healthcare and related services. The PQI indicator numbers and corresponding diagnosis are listed in Table 29. Each PQI indicator rate for each Community of Concern is noted in Table 30. Rates that exceeded any benchmark are highlighted.

[34] Agency for Healthcare Research and Quality. (n.d.) *Prevention quality indicators overview*. Retrieved from: http://qualityindicators.ahrq.gov/modules/pqi_resources.aspx

Table 29: PQI number with corresponding diagnosis -

PQI #	*Indicator*
PQI1	Diabetes short-term complications
PQI2	Perforated appendix
PQI3	Diabetes long-term complications
PQI5	Chronic obstructive pulmonary disease (COPD): chronic bronchitis or emphysema or asthma in older adults (ages 40 and over)
PQI7	Hypertension (high blood pressure)
PQI8	Heart failure
PQI10	Dehydration
PQI11	Bacterial pneumonia
PQI12	Urinary tract infection (UTI)
PQI13	Angina without procedure (chest pain)
PQI14	Uncontrolled diabetes
PQI15	Asthma in younger adults (ages 18-39)
PQI16	Lower-extremity amputation among patients with diabetes (removal of leg or foot due to diabetes complications)

Table 30: PQI for RRMC/SSHNV Communities of Concern as rates of hospitalizations per 10,000 of population

ZIP Code	PQI1	PQI2	PQI3	PQI5	PQI7	PQI8	PQI10	PQI11	PQI12	PQI13	PQI14	PQI15	PQI16
95901	9.7	2.7	20.4	84.9	2.4	45.0	11.1	41.1	30.8	1.7	--	--	2.5
95953	14.6	--	11.8	60.2	--	36.5	7.7	31.7	22.9	--	--	--	--
95961	8.0	2.6	17.4	90.2	2.5	39.3	8.0	34.9	18.6	--		--	2.4
95991	7.0	2.8	12.7	55.1	3.1	38.3	11.3	43.5	29.2	--	2.3	2.7	2.5
Sutter	*6.3*	*2.8*	*10.3*	*44.3*	*2.9*	*31.5*	*9.8*	*34.4*	*24.2*	*1.2*	*1.7*	*1.8*	*2.1*
Yuba	*8.6*	*3.4*	*16.9*	*79.2*	*2.3*	*40.1*	*10.4*	*36.6*	*24.3*	*1.3*	*1.6*	*2.7*	*2.8*
CA	*5.6*	*2.9*	*10.7*	*35.2*	*3.4*	*28.1*	*7.3*	*18.8*	*13.7*	*1.9*	*1.0*	*2.8*	*1.5*

(Source: OSHPD, 2013)

There were no notable differences in county rates compared to the state rate with one exception—PQI11 (bacterial pneumonia). In this instance rates for both counties were approximately twice the state rate. Further, each Community of Concern exceeded benchmarks in PQI11, and some notably so. For example, ZIP codes 95901 (Linda area) and 95991 (Yuba City area) had rates for this PQI indicator that were over twice the state rate.

Further, in all instances each Community of Concern exceeded benchmarks in every PQI with the exception of PQI2 (perforated appendix), and again, with some notable differences. For example, rates for Linda area (95901) for PQI3 (diabetes long-term complications) were 20.4 compared to the state rate of 10.7. Also, the same ZIP code (Linda area) had a rate for PQI5 (COPD) of 84.9 compared to the state rate of 35.2.

Social and Economic Factors – Economic Stability (Income, Employment, and Education) and Community Safety (Major Crime, Violence, and Traffic Accidents)

Economic Stability – Education and Income

Indicators of economic stability used in the CHNA included percent of residents in each Community of Concern that 1) had no high school diploma, 2) lived below the federal poverty level, 3) were unemployed, 4) received public assistance, as well as the median household income for the area. Table 31 examines economic stability in RRMC/SSHNV Communities of Concern.

Table 31: Percent: Adults with no high school diploma, living below 100% federal poverty level, median household income, percent on public assistance, and percent unemployed by ZIP code compared to county and state benchmarks

ZIP Code	Percent Adults with No High School Diploma	Percent Living in Poverty	Median Income	Percent Receiving Public Assistance	Percent Unemployed
95901 – Linda	21.4	25.7	$40,260	30.5	20.2
95953 – Live Oak	32.9	17.3	$45,414	14.8	12.5
95961 – Olivehurst	27.7	18.4	$46,144	23.1	19.5
95991 – Yuba City	25.0	21.2	$42,589	23.8	16.9
Sutter County	*21.7*	*16.7*	*$50,408*	*16.2*	*15.0*
Yuba County	*21.0*	*21.6*	*$44,902*	*24.4*	*19.3*
CA State	*18.8*	*15.9*	*$61,094*	*12.1*	*11.5*

(Source: US Census, 2013)

Both Sutter and Yuba counties had rates that exceeded the state benchmark. In general Yuba County had more unfavorable differences from state benchmarks than did neighboring county Sutter. For example, the Yuba County median income of $44,902 is 73.4% that of the state's $61,094 and 87.4% of Sutter County's $50,408. Further, in all instances each Community of Concern exceeded one or more benchmarks for measures of economic stability, with some notable differences. For example, 32.9% of Live Oak area (95953) residents did not have a high school diploma compared to a state rate of 18.8%. 25.7% of Linda area (95901) residents lived in poverty compared to the state rate of 15.9%. Further, Linda residents had a median income that was the lowest among all Communities of Concern and almost $21,000 less than the state level. Further, 30.5% of Linda residents received public assistance and the community had a 20.2% unemployment rate. Olivehurst (95961) residents experienced a 19.5% unemployment rate while 27.7% did not have a high school diploma.

Community Safety – Major Crime Rates, Assault, and Traffic Accidents with Fatalities

Feeling safe in the community you live in is an important part of overall health. Both the physical and social environment in which community members reside affects safety. People who feel safe in their physical environment are more likely to spend time outdoors in a variety of activities.[35] Moreover, violence and crime in a community are related to the social environment and how much community

[35] Cubbin, C., Pedregon, V., Egerter, S. and Braveman, P. (2008). *Where we live matters for our health: Neighborhoods and Health*. Retrieved from: http://www.commissiononhealth.org/PDF/888f4a18-eb90-45be-a2f8-159e84a55a4c/Issue%20Brief%203%20Sept%2008%20-%20Neighborhoods%20and%20Health.pdf

residents feel they can trust neighbors to not engage in violent or criminal activity that may cause them harm, or harm to the people they care about, or their property. Conversely, repeated exposure to violence and crime could leave residents feeling traumatized and lacking trust in the safety of their community.

Indicators examined included measures of crime and violence, ED visits, and hospitalizations related to assault and intentional injury, as well as factors related to physically navigating the community and feeling safe from traffic related injury.

Major Crimes

Criminal activity in a community has a large effect on the community's actual and perceived safety. Major crimes reported to the California Department of Justice were used to create estimated major crime rates for places in the HSA. Crime data were examined for the RRMC/SSHNV Communities of Concern (note: ZIP codes are approximations for these areas). Crimes included both violent crime such as homicide, rape, robbery, and assault, and property crimes such as burglary, motor vehicle theft, and larceny. Crimes are reported per 10,000 of population.

Table 32: Major crimes by jurisdiction and ZIP codes for RRMC/SSHNV Communities of Concern

	ZIP Code	Place	Crimes by Area
Major Crimes	95901	Linda	520.4
	95953	Live Oak	344.8
	95961	Olivehurst	307.8
	95991	Yuba City	344.8
	Sutter County		*337.6*
	Yuba County		*335.4*
	CA State		*312.7*

(Source: California Department of Justice, 2013)

All Communities of Concern except Olivehurst had major crime rates that exceeded both county and state benchmarks. Linda (95901) had the highest rates, while Live Oak and Yuba City had the same rate.

Assault: Emergency Department Visits and Hospitalizations

Understanding safety in the RRMC/SSHNV requires the examination of both crime rates as shown above as well activities of intentional harm. Rates of assault (intentionally harming another person) are included in this assessment to gain an understanding of violence and safety in the RRMC/SSHNV HSA area. Figures 17 and 18 show ED visits and hospitalizations related to assault for the area.

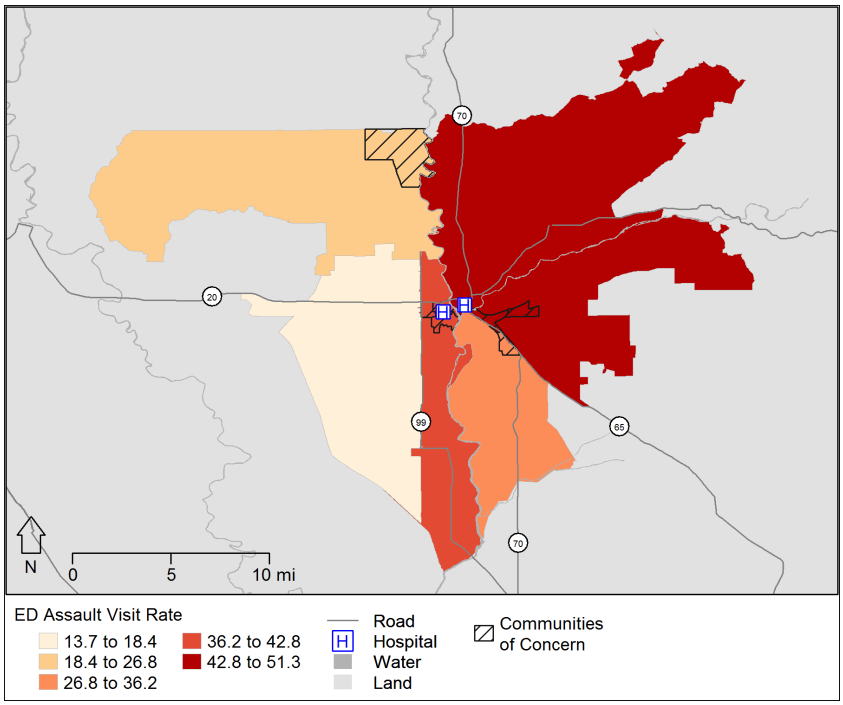

Figure 17: ED visits related to assault for the RRMC/SSHNV HSA

Residents of Linda (95901) visited the ED due to assault at the highest rates among all Communities of Concern, with rates that fell into the range of 42.8 to 51.3. This stands in contrast to the state rate of 30.6. The Yuba City area (95991) had the second highest rates, followed by Olivehurst and then Live Oak. The same pattern is seen below in hospitalizations due to assault.

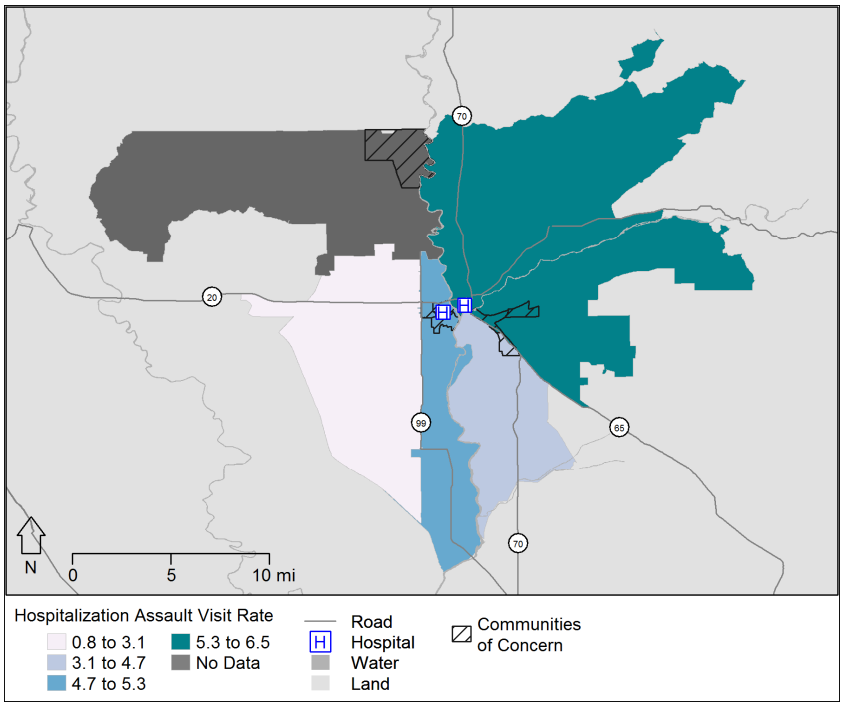

Figure 18: Hospitalizations related to assaults for the RRMC/SSHNV HSA -

Several key informants discussed the impact of perceived safety on community members' health behavior, and specifically being out-of-doors and active. One said this:

> *…a feeling of not being safe in a particular neighborhood. And I think that's part of people not coming out and being active and maybe feeling like they can't walk through a neighborhood to get what they need. I think that isolation and safety…I think it would be better if the parks were safe and available in those areas* (KI_3).

Traffic Accidents with Fatalities

An examination of fatal traffic accident data helps us to understand the safety of people as they travel through the area they work and live. Figure 19 shows traffic accidents that resulted in a fatality. Data indicates that traffic accidents resulting in a fatality were spread throughout the RRMC/SSHNV HSA, and occurred mostly along major highways located throughout the area.

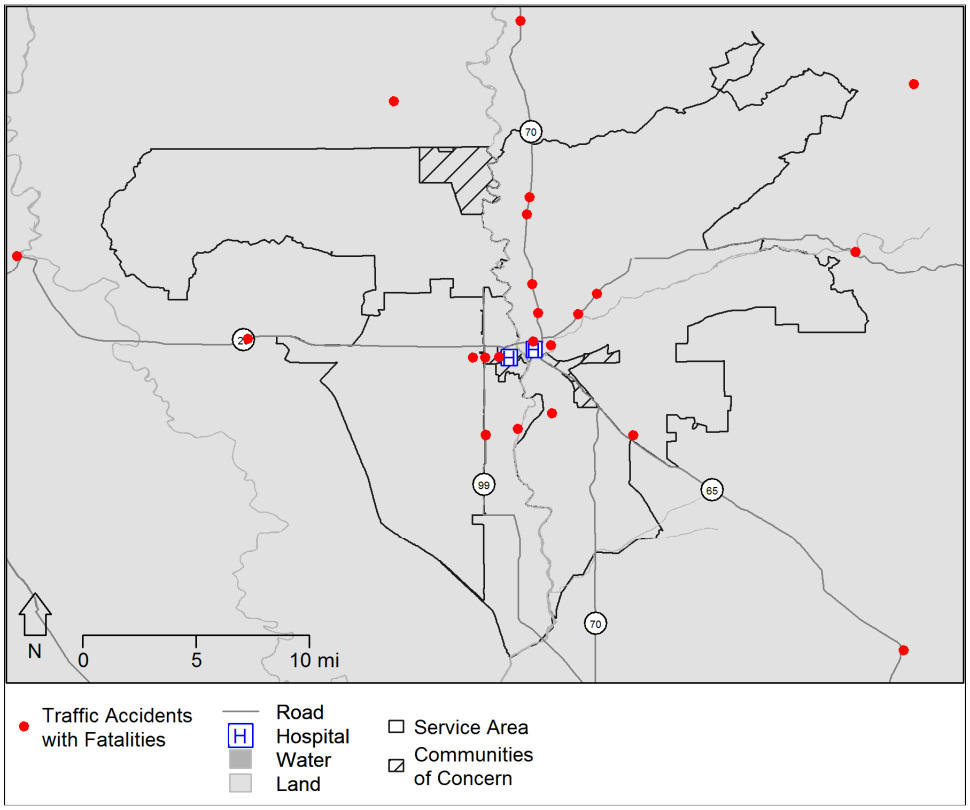

Figure 19: Traffic accidents resulting in a fatality for the RRMC/SSHNV HSA and surrounding area

Community residents and key informants discussed the safety of the community associated with walking and biking. One key informant said this:

> *…When we think in terms of safety its like walkability, transit, lighting, crosswalks. We have a wonderful bike trail that goes out to Sutter; you can walk and bike on but there's no lights so if you want to go and exercise before 7 a.m. in the morning or after 5 o'clock at night its pitch black there's even transient people out there where its not safe; it's a bunch of fields* (KI_2).

Physical Environment – Air and Water Quality, Housing, and Transportation

Pollution Burden Score

The California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment developed the *California Communities Environmental Health Screening Tool, Version 2.0*.[36] This tool was designed to identify California communities that are disproportionately burdened by multiple sources of pollution. The tool combines 13 types of pollution, environmental factors, and various population characteristics to produce a "pollution burden" score for each census tract in the state, ranging between a minimum 0 and a maximum of 100, with higher scores indicator a great pollution burden. The pollution factors include ozone and PM2.5 concentrations; diesel PM emissions; pesticide use; toxic releases from facilities; traffic density; drinking water contaminants; cleanup sites; impaired bodies of water; groundwater threats; hazardous wastes facilities and generators; and solid waste sites and facilities.

A pollution burden score was identified for each census tract in the RRMC/SSHNV Communities of Concern and is displayed in Figure 20. Each census tract's pollution burden score ranged from 0 to 100 and was assigned to a quintile. This is displayed in the figure using color gradation; in the figure, census tracts with darker colors have higher pollution burden scores.

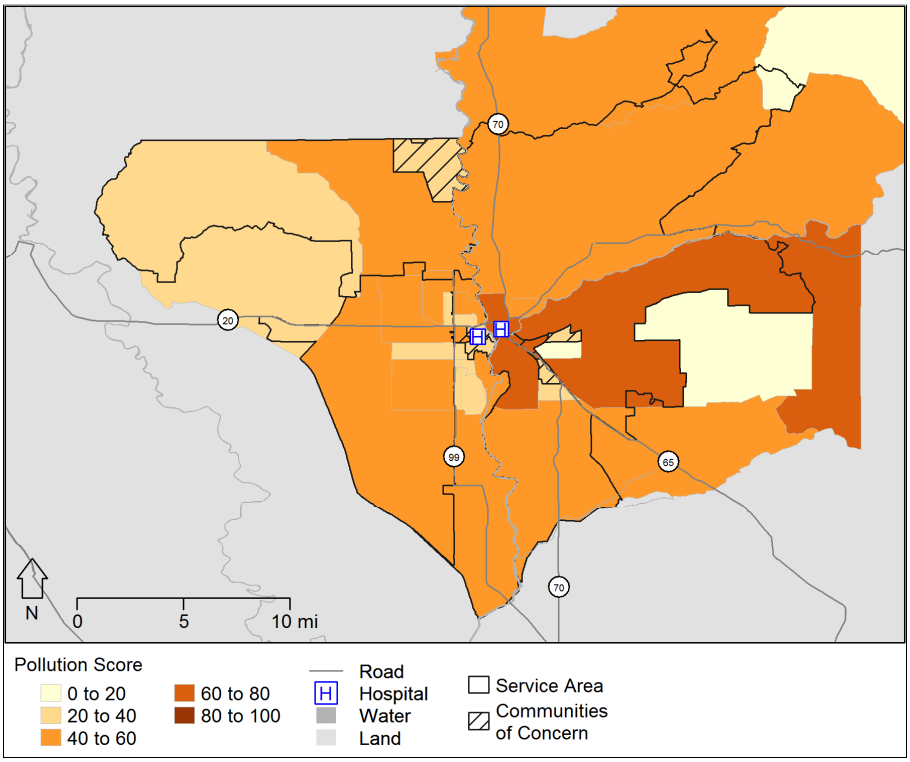

Figure 20: Pollution burden scores for census tracts in the RRMC/SSHNV HSA

For the RRMC/SSHNV Communities of Concern, no census tracts fell into the highest quintile for the pollution burden score. However, census tracts in the Linda area (95901) fell into the second highest quintile with all other Communities of Concern falling into the fourth highest quintile.

[36] *California Communities Environmental Health Screening Tool, Version 2.0 (CalEnviroScreen 2.0). Guidance and Screen Tool*. October 2014. Retrieved from: http://oehha.ca.gov/ej/pdf/CES20FinalReportUpdateOct2014.pdf

Housing & Transit – Housing Stability and Percent Households with No Vehicle

Examining where people live and how they navigate their community is important to understand the health of the community overall. This section examines housing stability and distance to a transit stop.

Housing Stability

The lack of a stable place to live can have negative health effects on individuals and families. Table 33 shows rates for various housing indicators by ZIP code for the Communities of Concern as indicators of housing stability.

Table 33: Housing vacancy, people living per housing unit and percent of population renting by ZIP code

ZIP Code	Percent Housing Vacancy	People Per Housing Unit	Percent Renting
95901 – Linda	10.8	2.9	48.5
95953 – Live Oak	7.6	3.2	39.7
95961 – Olivehurst	10.1	3.3	32.5
95991 – Yuba City	7.0	2.9	51.5
Sutter County	*6.4*	*3.0*	*40.4*
Yuba County	*12.4*	*2.9*	*40.9*
CA State	*8.6*	*2.9*	*44.7*

(Source: US Census, 2013)

Each Community of Concern exceeded benchmarks for the percent of vacant houses. Both the Live Oak (95953) and the Olivehurst (95961) areas had people per housing unit rates that were higher than both county and state benchmarks. Further, over half of Yuba City area (95991) residents and 48.5% of Linda area (95901) residents rented their homes.

Percent of Households with No Vehicle

Table 34 displays the percent of households for each Community of Concern that did not have a vehicle.

Table 34: Percent of households without a vehicle by ZIP code compared to county and state benchmarks

ZIP Code	Percent of Households with No Vehicle
95901 – Linda	8.9%
95953 – Live Oak	6.8%
95961 – Olivehurst	6.5%
95991 – Yuba City	9.5%
Sutter County	*6.8%*
Yuba County	*6.8%*
CA State	*7.8%*

(Source: US Census, 2013)

Both the Linda (95901) and Yuba City (95991) areas had a higher number of households without a vehicle when compared to both county and state benchmarks. For Yuba City (95991), nearly one out of every ten households did not have a vehicle.

Key informants discussed transportation as a barrier in accessing healthcare and other basic necessities for life. A community health worker said this: "*…a lot of people don't have transportation and the transportation system [is inadequate]…it takes an hour to go three miles; with a couple of kids in the rain, it's prohibitive*" (KI_5). Another key informant described transportation challenges for residents living in more rural areas:

> *So, if you're a young mom and you need to come down here to access medical care…if you were to come down here, that's an all-day affair; and there is no transportation to the bus because you walk to where you would need to get the bus; and there's no sidewalks and that's true of most of the communities here* (KI_4).

Resources Potentially Available to Meet Significant Health Needs

There were 88 individual resources identified in the Communities of Concern and surrounding areas in accordance to the analytical method detailed in Appendix B. The method for resource identification began with the list of resources from the 2013 CHNA, verifying that the resource still existed, and then adding other resources identified in the primary data for the 2016 CHNA. Examination of the resources revealed the following number of services for each significant health need. Many resources delivered services that could meet more than one of the identified significant health needs:

Table 35: Resources available to meet significant health needs in priority order

Significant Health Need (in priority order)	Number of Resources
Access to Quality Primary Care Health Services and Prescription Medication	30
Access to Affordable, Healthy Food	20
Access to Mental, Behavioral, and Substance Abuse Services	37
Access to Specialty Care	27
Health Education and Literacy	30
Access to Transportation and Mobility	5

For more specific examination of resources by significant health need and by geographic location, see the full list in Appendix H. Due to the challenges of identifying many resources available to serve the community some existing resources may not have been included while others may have ceased to exist since the publication of this CHNA report.

Impact of Actions Taken Since the Previous CHNA

The final regulations issued by the Department of Treasury on December 29, 2014 regarding nonprofit hospitals conducting CHNAs 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)."[37] Similarly, the State of California requires all non-government nonprofit hospitals licensed by the state to submit a "Community Benefits Plan" to OSHPD annually. The plan must include: "…a description of the activities that the hospital has undertaken in order to address identified

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

community needs within its mission and financial capacity…" (p. 1).[38] OHSPD makes each hospital's community benefit plan available to the general public through its website or by request. The following descriptions of the impact of actions taken by RRMC were taken from the hospital's annually Community Benefit Plan. Detailed plans can be retrieved by visiting the OSHPD website and downloading the plan (see: http://www.oshpd.ca.gov/HID/CommunityBenefit/Plans.html). Due to its legal status, SSHNV did not file an annual report with OSHPD.

Rideout Regional Medical Center

Prior to this CHNA, RRMC conducted its most recent CHNA in 2013. The 2013 CHNA identified 16 specific health needs. Working within its mission and capabilities, RRMC identified two of these needs to address in its community benefit implementation strategy: 1) food and nutrition, and 2) dental care for adults. RRMC developed plans to address these health needs that included conducting annual health fairs and community health education classes. Specific outcomes of these efforts are described below.

Food and Nutrition

Health Fairs: annual health fairs were held and offered healthy eating options, information and checkups, screening and prevention information that emphasized adult dental services, food, and nutrition.

- In September and October 2014 RRMC partnered with a local federally qualified health center Ampla Health and other health related organizations to conduct two health fairs. Both fairs offered nutritional outreach, experts in adult and children's dental exams, screenings, and health information. Healthcare professionals were on hand to present information and conduct screenings. Both fairs were attended by hundreds of community residents.
- Examples of specific outcomes included the following:
    - Both fairs were well attended; the second health fair had over 500 attendees
    - Three households submitted applications for enrollment in Cal Fresh
    - 107 flu shots were administered
    - 11 colorectal cancer screening kits were distributed to attendees
    - Approximately 100 dental screenings were conducted

Community Health Education: RRMC offered community health education classes to all community members focusing on the benefits of eating healthy, exercise, and emotional well-being.

- In 2014 the "Rideout Healthy Kids" program began. This program provides health education to elementary and middle school children in an interactive musical theater performance and a comedy show. An evaluation of specific outcomes of this program included the following:
    - In 2014 the program was delivered to over 22,000 Yuba-Sutter school system students
    - In 2015 the Rideout Healthy Kids program was expanded to a neighboring county
    - Teacher evaluations were conducted after each program was delivered to assess observed behavioral changes and increased awareness in the students that attended the program. A sample of evaluations was selected at random (*n*=22) to demonstrate the impact of the program. This analysis revealed that 64% of teachers surveyed reported observing an increased awareness of healthy eating habits and 59% reported observing an increased awareness of exercise and activity habits in the students that attended the program.

[38] Hospital Community Benefit Plans (n.d.). *SB697 (Chapter 812, Statutes of 1994)*. The Office of Statewide Health Planning and Development. Retrieved April 27, 2016 from: http://www.oshpd.ca.gov/HID/CommunityBenefit/SB697CommBenefits.pdf

- RRMC developed a series of health education classes and delivers these monthly throughout the calendar year. Topics include nutrition, diabetes management, allergies, breast-cancer, and grief/health coping.
- The RRMC Teen Leadership Council built planter boxes on the Yuba-Sutter fairgrounds property. The location of the property is adjacent to a food desert identified in the 2013 CHNA, and grows a number of fruits and vegetables that are available for community members.

Adult Dental Health

Adult Dental Health: RRMC offered multiple services and program focused on improving adult oral health in the community. In addition to the health fair information noted above, the following impacts of these efforts is summarized below:

- RRMC developed and placed educational brochures in all affiliated Rideout Health Clinics and outpatient facilities on oral health and information on low cost dental services available through the Ampla Health Dental Clinic in Olivehurst. To date approximately 1,000 brochures have been printed and distributed.
- The Rideout Healthy Kids program (discussed above) also includes an oral health education component:
    - The program provides toothbrushes and toothpaste to attending students (donated by Delta Dental). Since the inception of the program approximately 1,000 tooth brushes and toothpaste containers have been distributed.
    - Students are given flyers containing information on adult dental services offered by Ampla Health to give to adults in their homes. Since the inception of the program approximately 1,000 brochures have been distributed.
- RRMC provided financial support for local programs focused on adult dental services. Allana Smiles is an organization that provides essential adult dental care services to patients, and began delivering services to the community in May 2013. Through May 2016 Allana Smiles has treated 31 RRMC Cancer Center patients providing over $75,000 of dentistry services at no charge to the patients.

Sutter Surgical Hospital—North Valley

Prior to this CHNA, SSHNV conducted its most recent CHNA in 2013. The 2013 CHNA identified 10 health needs. Working within its mission and capabilities, SSHNV identified three of these needs to address in its community benefit implementation strategy: 1) access to healthcare and preventative care, 2) diet and physical activities, and 3) poverty. SSHNV developed plans to address these health needs that included developing partnerships with local federally qualified health centers, offering low-cost men's and women's health screenings, expanding insurance enrollment, launching a diet and nutrition education program for school children, providing grant funding to supplement the salary of physical education specialists in the Yuba City Unified School District, and a program to help former incarcerates remove body tattoos. Specific outcomes of these efforts are described below.

Access to Healthcare and Preventative Care

Women's Health Screenings: In support of Women's Breast Cancer Awareness Month, SSHNV partners with other community organizations such as Gweke Foundation and Peach Tree Health to offer low costs mammograms and health screenings each October. These include rectal, clinical breast, pap, and bone density screenings at no or low costs to under and uninsured women in the Yuba City area. While at the screenings, participating community residents are offered insurance enrollment information and other resources to help improve access to primary healthcare. Below are summaries of impact of these screenings:

- In 2014 157 women were served
- In 2015 144 women were served
- In 2015 158 women received low cost or no-cost mammograms

Annual Men's Screening Event: in honor of Prostate Awareness Month, SSHNV partners with community organizations to offer a physical exam and prostate screening kit to low income men at a cost of $15 every September. Community residents attending the screening are connected to other community resources such as insurance enrollment services. A summary of the impact of these includes:

- In 2014 31 men received screenings and insurance enrollment information from Covered California
- In 2015 33 men received screenings

Expanded Insurance Enrollment: SSHNV provided funding to Covered California to expand insurance coverage to residents in the SSHNV HSA. In 2014 approximately $40,000 of funding was provided.

Diet and Physical Activities

Diet and Nutrition Education: In 2013 SSHNV launched a six-week education program targeting children ages 6-14 and their families. The program focuses on teaching participants ways to incorporate healthy choices into daily living by teaching students to eat a nutritious diet, increase physical activity, and enhance mental well-being. In 2014 the program merged with Shady Creek Outdoor Education Foundation, Yuba City, CA, to expand the program and its curriculum. A summary of the impact of the program includes:

- In 2014 over 1,400 students from 25 schools participated in the program
- In 2015 over 2,400 students from 38 different schools in Yuba and Sutter Counties participated in the program

Physical Education (PE) Specialist for Yuba City Unified School District: SSHNV provides grant funding to supplement the salary for a PE Specialist serving the Yuba City Unified School District, grades K-8.

- In 2014, SSHNV contributed approximately $72,000 in funding to support this position
- In 2015, SSHNV contributed approximately $80,000 in funding to support this position

Poverty

Tattoo Removal Program: SSHNV funds a low-cost program aimed at helping primarily former incarcerates remove tattoos, and often those with gang-related markings. The objective of the program is to help inmates, parolees, and others on probation lower the risks of recidivism through enhancing their opportunities for employment by removing tattoos. The impact of the program is summarized below:

- In 2014 286 tattoos were removed
- In 2015, more than 280 tattoos were removed

Solicitation for Public Comments

Both RRMC and SSHNV requested written comments from the public on their 2013 CHNA and most recently adopted implementation strategies through their websites.[39] At the time of the development of this CHNA report neither RRMC nor SSHNV had not received written comments. However, input from the broader community was considered and taken into account when

[39] See: https://www.frhg.org/Contact-Us.aspx for Rideout Reggional Medical Center and http://www.suttersurgicalhospitalnorthvalley.org/contact/ for Sutter Surgical Hospital—North Valley

identifying and prioritizing the significant health needs of the community served for the 2016 CHNA through key informant interviews and focus groups, and more. Both RRMC and SSHNV will continue to use their respective websites as tools to solicit for public comments and ensure that these comments are considered community input in the development of future CHNAs.

Limitations

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. In addition, data about behavioral issues and conditions like obesity were difficult to obtain at the sub-county level and were not available by race and ethnicity, resulting in the reliance on county data. 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 proved to be a challenge. Measures were taken to reach out to area organizations for recruitment, assuming that the organization represented a Community of Concern geographically, racially, ethnically, or culturally. To help with recruitment, focus group participants were offered incentives such as food and refreshments. Additionally, data collection of health resources in the hospital service areas was challenging; though an effort was made to verify all resources (assets) collected in the 2013 CHNA via web search, we recognize that ultimately some resources may not be listed that exist in the HSA.

Conclusion

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

Appendices

Appendix A: Secondary Data Dictionary and Processing

The secondary data supporting the 2016 Community Health Needs Assessment were collected from a variety of sources, and was processed in multiple stages before it was used for analysis. This document details those stages. It begins with a list of the secondary indicators collected, organized according to the conceptual model used in the CHNA. Next, the approaches used to define ZIP code boundaries and integrate P.O. box records into the analysis are described. General data sources are then listed, followed by a description of the basic processing steps applied to most indicators. It concludes by detailing additional specific processing steps used to generate a subset of more complicated indicators.

Secondary Indicators

The conceptual model illustrated in Figure A1 below guided the selection of secondary indicators. This model organizes individual health-related characteristics of populations in terms of how they relate to up- or down- stream factors of health and health disparities. Specific secondary indicators were selected to represent these characteristics in the needs assessment. Table A1 below lists these indicators, and identifies which health-related characteristic they are primarily used to represent.

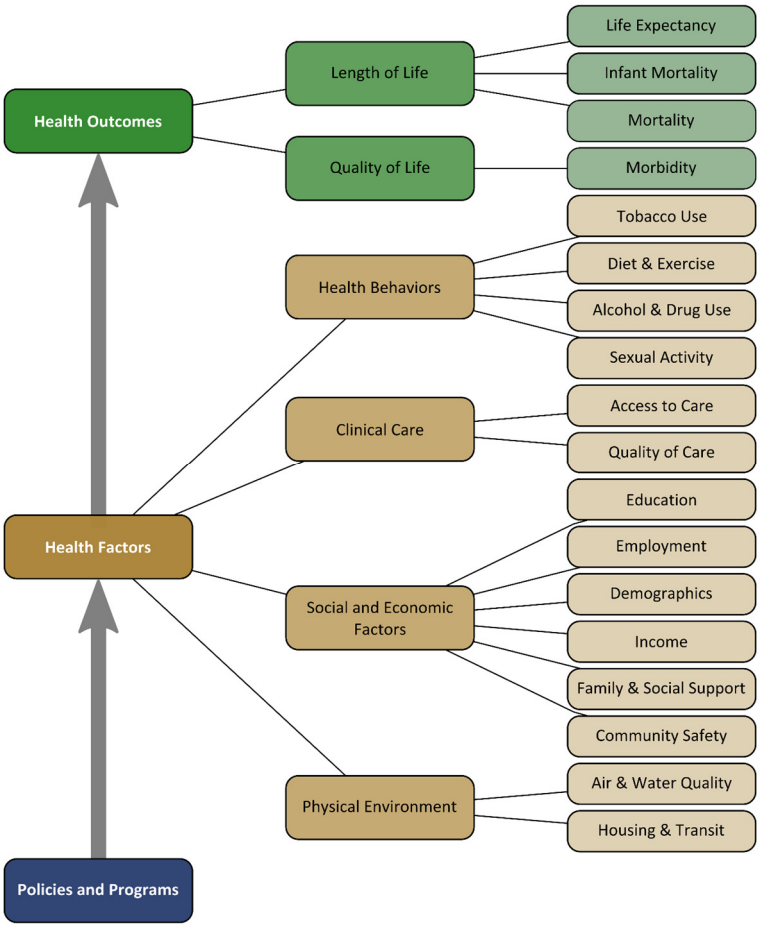

Figure A1: RRMC/SSHNV Community Health Assessment Conceptual Model as modified from the County Health Rankings Model, Robert Wood Johnson Foundation, and University of Wisconsin, 2015

Table A1: Indicators used in the CHNA as organized by the County Health Rankings Model, Robert Wood Johnson Foundation, and University of Wisconsin, 2015

Conceptual Model

Conceptual Model			
Main Area	Sub Area	Concept	
Health Outcomes	Length of Life	Infant Mortality	Infant Mortality Rate
		Life Expectancy	Life Expectancy at Birth
		Mortality	Age-Adjusted All-Cause Mortality
			All Other Causes
			Alzheimer's Disease
			Cerebrovascular Disease (Stroke)
			Chronic Liver Disease and Cirrhosis
			Chronic Lower Respiratory Disease
			Diabetes Mellitus
			Diseases of the Heart
			Essential Hypertension & Hypertensive Renal Disease
			Female Mortality Rate
			Influenza and Pneumonia
			Intentional Self Harm (Suicide)
			Male Mortality Rate
			Malignant Neoplasms (Cancer)
			Years Potential Life Lost (75)
			Nephritis, Nephrotic Syndrome and Nephrosis (Kidney Disease)
			Unintentional Injuries (Accidents)
	Quality of Life/ Morbidity	Cancer	Breast Cancer
			Colorectal Cancer
			Lung Cancer
			Prostate Cancer
		Chronic Disease	Diabetes
			Heart Disease
			Hypertension
			Nephritis, Nephrotic Syndrome and Nephrosis (Kidney Disease)
			Stroke
		Infectious Disease	HIV/AIDS
			STIs
			Tuberculosis
		Injuries	Assault
			Self-Inflicted Injury
			Unintentional Injury
		Mental Health	Mental Health
		Respiratory	Asthma
			Chronic Obstructive Pulmonary Disease (COPD)
		Other Indicators	Hip Fractures
			Oral Cavity/Dental
			Low Birth Weight
			Total ED Discharge Rate
			Total H Discharge Rate
Health Factors	Health Behavior	Tobacco Use	Current Smokers
		Alcohol and	Binge Drinking

Conceptual Model			
Main Area	Sub Area	Concept	
		Drug Use	Mental Health, Substance Abuse
		Diet & Exercise	Obesity
			Food Deserts
			Modified Retail Food Environment Index (mRFEI)
			Park Access
		Sexual Activity	Teen Birth Rate
	Clinical Care	Access to Care	Health Professional Shortage Areas (Primary Care, Dental, Mental Health)
			Percent Uninsured
		Quality of Care	Prevention Quality Indicators (PQI)
	Social and Economic Factors	Community Safety	Major Crime Rate
			Traffic Accidents Resulting in Fatalities
		Demographics	Percent Asian (Not Hispanic)
			Percent Black (Not Hispanic)
			Percent Hispanic (Any Race)
			Percent American Indian (Not Hispanic)
			Percent Pacific Islander (Not Hispanic)
			Percent White (Not Hispanic)
			Percent Other Race or Two or More Races (Not Hispanic)
			Percent Minority (Hispanic or Non-White)
			Racial/Ethnic Diversity Index
			Population 5 Years or Older Who Speak Limited English
			Population by Age Group: 0-4, 5-14, 15-24, 25-34,45-54, 55-64, 65-74, 75-84, and 85 and over
			Median Age
			Percent Non-Citizen
			Percent Female
			Percent Foreign-Born
			Percent Male
			Percent Civilian Noninstitutionalized Population with a Disability
			Total Population
			Percent Over 18 Who are Civilian Veterans
		Education	Percent 25 or Older Without a High School Diploma
		Family and Social Support	Percent Single Female-Headed Households
		Employment	Percent Unemployed
		Income	GINI Coefficient
			Median income
			Percent Families with Children in Poverty
			Percent Households 65 years or Older in Poverty
			Percent Single Female Headed Households in Poverty
			Percent with Public Assistance
			Percent with Income Less Then Federal Poverty Level
	Physical Environment	Air & Water Quality	Pollution Burden

Conceptual Model			
Main Area	Sub Area	Concept	
		Housing	Average Population per Housing Unit
			Percent Renter-Occupied Housing Units
			Percent Vacant Housing Units
		Transit	Percent Households with No Vehicle
			Population Living Near a Transit Stop

ZIP Code Definitions

All health outcome indicators collected in this analysis are reported by patient mailing ZIP codes. ZIP codes are defined by the US 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 approach of the US Census Bureau, which is the main source of population and demographic information in the US. Instead of measuring the population along a collection of roads, the Census reports population figures for distinct, contiguous areas. In an attempt to support the analysis of ZIP code data, the 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 the health outcome data reported at the ZIP code level, make it possible to calculate rates for each ZCTA. But the difference in the definition between mailing ZIP codes and ZCTAs has two important implications for analyses of ZIP level data.

First, it should be understood that 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. Secondly, 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 ZCTA. But residents whose mailing addresses correspond to 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. In order to incorporate these patients into the analysis, the point location (latitude and longitude) of all ZIP codes in California[40] were compared to ZCTA boundaries[41]. Because various health outcome data sources were available in different years, this comparison was made between the ZCTA boundaries and the point locations of ZIP codes in April of the year (or the central year in the case of indicators aggregated over multiple years) for which the health outcome indicators were reported. All ZIP codes (whether PO Box or unique ZIP code) that were not included in the ZCTA dataset were identified. These ZIP codes were then assigned to either ZCTA in which they fell, or in the case of rural areas that are not completely covered by ZCTAs, the ZCTA to which they were closest. Health outcome information associated with these PO Box or unique ZIP codes were then assigned added to the ZCTAs to which they were assigned.

For example, 95992 is a PO box located in Yuba City. ZIP Code 95992 is not represented by a ZCTA, but it could have patient data reported as health outcome indicators. Through the process identified above, it was found that 95992 is located within 95991, which does have an associated ZCTA. Health outcome data for ZIP codes 95992 and 95991 were therefore assigned to ZCTA 95991, and used to calculate rates. All ZIP code level health outcome indicators given in this report are therefore reporting approximate rates for ZCTAs, but for the sake of familiarity of terms they are presented in the body of the report as ZIP code rates.

Data Sources

The majority of health factor and health outcome indicators were collected from three main data sources: the US Census Bureau (Census), the California Office of Statewide Health Planning and Development (OSHPD), and the California Department of Public Health (CDPH). Census data was collected both to provide descriptions of population characteristics for the study area, as well as to calculate rates for health outcome indicators. Table A2 below lists the

[40] Datasheer, L.L.C. (2015, April 15). *ZIP Code Database DELUXE BUSINESS.* Retrieved from Zip-Codes.com: http://www.Zip-Codes.com

[41] US Census Bureau. (2015). *TIGER/Line® Shapefiles and TIGER/Line® Files.* Retrieved August 31, 2011, from http://www.census.gov/geo/maps-data/data/tiger-line.html

2013 population characteristic indicators and sources. Table A3 below lists sources for indicators used to calculate health outcome indicator rates, which were collected for 2012, 2013, and 2014. These demographic indicators were collected variously at the Census blocks and tracts, ZCTA, county, and state levels. In urban areas, Census blocks are roughly equivalent to a city block, and tracts to a neighborhood.

Table A2: Demographic indicators collected from the US Census Bureau[42]

Derived Indicator Name	Source Indicator Names	Source
Percent Minority (Hispanic or Non-White)	Total Population - Not Hispanic or Latino: - White alone	2013 American Community Survey 5-year Estimate Table B03002
Population 5 Years or Older Who Speak Limited English	For age groups 5 to 17; 18 to 64; and 65 years and over: Speak Spanish: - Speak English "not well"; Speak Spanish: - Speak English "not at all"; Speak other Indo-European languages: - Speak English "not well"; Speak other Indo-European languages: - Speak English "not at all"; Speak Asian and Pacific Island languages: - Speak English "not well"; Speak Asian and Pacific Island languages: - Speak English "not at all"; Speak other languages: - Speak English "not well"; Speak other languages: - Speak English "not at all"	2013 American Community Survey 5-year Estimate Table B16004
Percent Households 65 Years or Older in Poverty	Income in the past 12 months below poverty level: - Family households: - Married-couple family: - Householder 65 years and over; Income in the past 12 months below poverty level: - Family households: - Other family: - Male householder, no wife present: - Householder 65 years and over; Income in the past 12 months below poverty level: - Family households: - Other family: - Female householder, no husband present: - Householder 65 years and over; Income in the past 12 months below poverty level: - Nonfamily households: - Male householder: - Householder 65 years and over; Income in the past 12 months below poverty level: - Nonfamily households: - Female householder: - Householder 65 years and over; Total Households	2013 American Community Survey 5-year Estimate Table B17017
Median Income	Estimate; Median household income in the past 12 months (in 2013 inflation-adjusted dollars)	2013 American Community Survey 5-year Estimate Table B19013
GINI Coefficient	Gini Index	2013 American Community Survey 5-year Estimate Table B19083
Average Population per Housing Unit	Total population in Occupied Housing Units	2013 American Community Survey 5-year Estimate Table B25008

[42] US Census Bureau. (2015). *2013 American Community Survey 5-year estimates; 2012 American Community Survey 5-year estimates; 2011 American Community Survey 5-year estimates.* Retrieved February 14, 2015, from American Fact Finder: http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

Derived Indicator Name	Source Indicator Names	Source
Percent with Income Less Then Federal Poverty Level	Total: - Under .50; Total: - .50 to .99	2013 American Community Survey 5-year Estimate Table C17002
Percent Foreign Born	Total population - Foreign born	2013 American Community Survey 5-year Estimate Table DP02
Percent Non-Citizen	Foreign-born population - Not a U.S. citizen	2013 American Community Survey 5-year Estimate Table DP02
Percent Over 18 Who are Civilian Veterans	VETERAN STATUS - Civilian population 18 years and over - Civilian veterans	2013 American Community Survey 5-year Estimate Table DP02
Percent Civilian Noninstitutionalized Population with a Disability	DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION - Total Civilian Noninstitutionalized Population	2013 American Community Survey 5-year Estimate Table DP02
Percent on Public Assistance	INCOME AND BENEFITS (IN 2013 INFLATION-ADJUSTED DOLLARS) - With cash public assistance income; INCOME AND BENEFITS (IN 2013 INFLATION-ADJUSTED DOLLARS) - With cash public assistance income	2013 American Community Survey 5-year Estimate Table DP03
Percent on Public Insurance	HEALTH INSURANCE COVERAGE - Civilian noninstitutionalized population - With health insurance coverage - With public coverage	2013 American Community Survey 5-year Estimate Table DP03
Percent Renter- Occupied Households	Occupied housing units - Renter-occupied	2013 American Community Survey 5-year Estimate Table DP04
Percent Vacant Housing Units	Total housing units - Vacant housing units	2013 American Community Survey 5-year Estimate Table DP04
Percent Households with No Vehicle	Occupied housing units - No vehicles available	2013 American Community Survey 5-year Estimate Table DP04
Total Population	Total Population	2013 American Community Survey 5-year Estimate Table DP05
Percent Asian (Not Hispanic)	Total Population - Not Hispanic or Latino - Asian alone	2013 American Community Survey 5-year Estimate Table DP05
Percent Black (Not Hispanic)	Total Population - Not Hispanic or Latino - Black or African American alone	2013 American Community Survey 5-year Estimate Table DP05
Percent Hispanic (Any Race)	Total population - Hispanic or Latino (of any race)	2013 American Community Survey 5-year Estimate Table DP05
Percent American Indian (Not Hispanic)	Total population - Not Hispanic or Latino - American Indian and Alaska Native alone	2013 American Community Survey 5-year Estimate Table DP05
Percent Pacific Islander (Not Hispanic)	Total population - Not Hispanic or Latino - Native Hawaiian and Other Pacific Islander alone	2013 American Community Survey 5-year Estimate Table DP05

Derived Indicator Name	Source Indicator Names	Source
Percent White (Not Hispanic)	Total population - Not Hispanic or Latino - White alone	2013 American Community Survey 5-year Estimate Table DP05
Percent Other or Two or More Races (Not Hispanic)	Total population - Not Hispanic or Latino - some other race alone; Total population - Not Hispanic or Latino - Two or More Races	2013 American Community Survey 5-year Estimate Table DP05
Percent Female	Total population - Female	2013 American Community Survey 5-year Estimate Table DP05
Percent Male	Total population - Male	2013 American Community Survey 5-year Estimate Table DP05
Median Age	Median age (years)	2013 American Community Survey 5-year Estimate Table DP05
Population by Age Group	Under 5 years; 5 to 9 years; 10 to 14 years; 10 to 14 years; 20 to 24 years; 25 to 34 years; 35 to 44 years; 5 to 54 years; 55 to 59 years; 60 to 64 years; 65 to 74 years; 75 to 84 years; 85 years and over	2013 American Community Survey 5-year Estimate Table DP05
Percent Single Female-Headed Households	Female householder, No Husband Present, Family Household	2013 American Community Survey 5-year Estimate Table S1101
Percent 25 or Older Without a High School Diploma	100 - Percent High School Graduate Or Higher	2013 American Community Survey 5-year Estimate Table S1501
Percent Families with Children in Poverty	All families - Percent Below Poverty Level; Estimate; With Related Children Under 18 years	2013 American Community Survey 5-year Estimate Table S1702
Percent Single Female-Headed Households in Poverty	Female householder, No Husband Present - Percent Below Poverty Level; Estimate; With Related Children Under 18 years	2013 American Community Survey 5-year Estimate Table S1702
Percent Unemployed	Unemployment rate; Estimate; Population 16 years and over	2013 American Community Survey 5-year Estimate Table S2301
Percent Uninsured	Percent Uninsured; Estimate; Total civilian Noninstitutionalized Population	2013 American Community Survey 5-year Estimate Table S2701

Table A3: Census indicators Used for Health Outcome Rate Calculations[42,43]

Derived Indicator Name	Source Indicator Names	Source
Total Population	Total Population	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013) 2010 Decennial Census Summary File 1
Female	Female	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Male	Male	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age Under 1	DP05: Under 5 years PCT12: Male and Female, ages under 1, 1, 2, 3, and 4	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013); 2010 Decennial Census Summary File 1 Table PCT12
Age 1 to 4	DP05: Under 5 years PCT12: Male and Female, ages under 1, 1, 2, 3, and 4	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013); 2010 Decennial Census Summary File 1 Table PCT12
Age 5 to 14	5 to 9 years; 10 to 14 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age 15 to 24	15 to 19 years; 20 to 24 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age 25 to 34	25 to 34 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age 35 to 44	35 to 44 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age 45 to 54	45 to 54 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age 55 to 64	55 to 59 years; 60 to 64 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age 65 to 74	65 to 74 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age 75 to 84	75 to 84 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age 85 and Over	85 Years And Over	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
White	HISPANIC OR LATINO AND RACE - Total population - Not Hispanic or Latino - White alone	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Black	HISPANIC OR LATINO AND RACE - Total population - Not Hispanic or Latino - Black or African American alone	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Hispanic	HISPANIC OR LATINO AND RACE - Total population - Hispanic or Latino (of any race)	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Native American	HISPANIC OR LATINO AND RACE - Total population - Not Hispanic or Latino - American Indian and Alaska Native	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)

[43] U.S. Census Bureau. (2013). *2010 Census Summary File 1.* Retrieved February 14, 2013, from American Fact Finder: http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

Derived Indicator Name	Source Indicator Names	Source
	alone	
Asian/Pacific Islander	HISPANIC OR LATINO AND RACE - Total population - Not Hispanic or Latino - Asian alone; HISPANIC OR LATINO AND RACE - Total population - Not Hispanic or Latino - Native Hawaiian and Other Pacific Islander alone	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)

Collected health outcome data included the number of emergency department (ED) discharges, hospital (H) discharges[44], and mortalities associated with a number of conditions. Aggregated 2011 – 2013 ED and H discharge data were obtained from the Office of Statewide Health Planning and Development (OSHPD). Table A4 lists the specific indicators collected by ZIP code and county. These values report the total number of ED or H discharges that listed the corresponding ICD9 code as either a primary or any secondary diagnosis, or a principal or other E-code, as the case may be. In addition to reporting the total number of discharges associated with the specified codes per ZIP code/county, these data were also broken down by sex (male and female), age (under 1 year, 1 to 4 years, 5 to 14 years, 15 to 24 years, 25 to 34 years, 35 to 44 years, 45 to 54 years, 55 to 64 years, 65 to 84 years, and 85 years or older), and normalized race and ethnicity (Hispanic of any race, non-Hispanic White, non-Hispanic Black, non-Hispanic Asian or Pacific Islander, non-Hispanic Native American). In addition to the hospitalization and emergency department discharge data shown in Table A4, aggregated 2011 – 2013 Prevention Quality Indicators (PQI) (Version 4.5a) data were also obtained from OSHPD at the ZIP code and county levels.

To address patient privacy concerns, OSHPD applied a number of masking techniques to all their data (both ED and H discharge, and PQI). First, rather than providing data for a single year, data for each condition were totaled for 2011 through 2013 for each ZIP code or county. For the PQI dataset, values were not reported for any ZIP code or county where fewer than 11 cases were reported. For the ED and H discharge datasets, two additional levels of masking were applied. First, ZCTA sex, age, and normalized race/ethnicity indicators were not available for ZCTAs in what OSHPD classifies as "Small Counties." County level values for these small counties were reported in aggregated groups as follows: Alpine, Inyo, Mariposa, and Mono; Modoc, Plumas, and Sierra; and Colusa, Del Norte, Glenn, and Trinity. Secondly, rates were not reported for any ZIP code or county where fewer than 11 cases were reported.

Table A4: 2011 – 2013 OSHPD Hospitalization and Emergency Department Discharge Data

Category	Indicator Name	ICD9/E-Codes
Cancer	Breast Cancer	174, 175
	Colorectal Cancer	153, 154
	Lung Cancer	162, 163
	Prostate Cancer	185
Chronic Disease	Diabetes	250
	Hypertension	401-405
	Ischemic Heart Disease	410-414
	Chronic Kidney Disease	580-589
	Stroke	430-438
Infectious Disease	HIV/AIDS	042-044
	STIs	042-044, 090-099, 054.1,079.4

[44] While OSHPD data actually refer to discharges, for simplicity they are referred to as the visits they are taken to represent throughout the body of the report.

Category	Indicator Name	ICD9/E-Codes
	Tuberculosis	010-018, 137
Injuries[45]	Assault	E960-E969, E999.1
	Self-Inflicted Injury	E950-E959
	Unintentional Injury	E800-E869, E880-E929
Mental Health	Mental Health	290, 293-298, 301-302, 310-311
	Mental Health: Substance Abuse	291-292, 303-305
Respiratory	Asthma	493
	Chronic Obstructive Pulmonary Disease (COPD)	490-492, 494, 496
Other	Hip Fractures	820
	Oral Cavity/Dental	520-529
	Osteoporosis	733
Overall Discharges	Total Discharges	All Codes

Mortality and birth-related data for each ZIP code in 2010, 2011, and 2012 were collected from the California Department of Public Health (CDPH). The specific indicators collected are defined in Table A5. The majority of these indicators were used to calculate specific rates of mortality for 2012. A smaller number of them were used to calculate more complex derived indicators. To increase the stability of these derived indicators, rates were calculated using values for the years 2010 to 2012. These indicators include the total number of live births, total number of infant deaths (ages under 1 year), all-cause mortality by age, births with low infant birth weight, and births with mother's age at delivery under 20. Table A5 consequently also lists the years for which each indicator was collected.

Table A5: CDPH Birth and Mortality Data by ZIP Code

Indicator Name	ICD10 Code	Years Collected
Total Deaths		2012
Male Deaths		2012
Female Deaths		2012
Deaths by Age Group: Under 1, 1-4, 5-14, 15-24, 25-34,45-54, 55-64, 65-74, 75-84, and 85 and over		2010 - 2012
Diseases of the Heart	I00-I09, I11, I13, I20-I51	2012
Malignant Neoplasms (Cancer)	C00-C97	2012
Cerebrovascular Disease (Stroke)	I60-I69	2012
Chronic Lower Respiratory Disease	J40-J47	2012
Alzheimer's Disease	G30	2012
Unintentional Injuries (Accidents)	V01-X59, Y85-Y86	2012
Diabetes Mellitus	E10-E14	2012
Influenza and Pneumonia	J09-J18	2012
Chronic Liver Disease and Cirrhosis	K70, K73-K74	2012
Intentional Self Harm (Suicide)	U03, X60-X84, Y87.0	2012
Essential Hypertension & Hypertensive Renal Disease	I10, I12, I15	2012
Nephritis, Nephrotic Syndrome and Nephrosis	N00-N07, N17-N19, N25-N27	2012

[45] E-code definitions for injury indicators derived from CDC. (2011). *Matrix of E-code Groupings.* Retrieved March 4, 2013, from Injury Prevention & Control: Data & Statistics(WISQARS): http://www.cdc.gov/injury/wisqars/ecode_matrix.html

Indicator Name	ICD10 Code	Years Collected
All Other Causes	Residual Codes	2012
Total Births		2010 - 2012
Births with Infant Birthweight Under 1500 Grams, 1500-2499 Grams		2010 - 2012
Births with Mother's Age at Delivery Under 20		2010 - 2012

The remaining secondary indicators were collected from a variety of sources, and at various geographic levels. Table A6 lists the sources of these indicators, and lists the geographic level at which they were reported.

Table A6: Remaining Secondary Indicators

Indicator	Year	Definition	Reporting Unit	Data Source
Binge Drinking	2014	Adult Binge Drinking in the Past Year	County	2014 California Health Interview Survey http://ask.chis.ucla.edu/AskCHIS/tools/_layouts/AskChisTool/home.aspx#/geography (last accessed 9 Oct 2015)
Current Smokers	2014	Current Smoking Status: Adults and Teens	County	2014 California Health Interview Survey http://ask.chis.ucla.edu/AskCHIS/tools/_layouts/AskChisTool/home.aspx#/geography (last accessed 9 Oct 2015)
Food Deserts	2010	USDA Defined Food Desert; Low Access 1 mile Urban 10 Mile rural	Tract	USDA http://www.ers.usda.gov/data-products/food-access-research-atlas/download-the-data.aspx (Last Accessed 9 Oct 2015)
Modified Retail Food Environment Index (mRFEI)	2013	Table 00CZ2 for the following NAICS codes: 445120, 722513, 445230, 452910, 445110	ZCTA	US Census Bureau 2013 County Business Patterns
Park Access	2010	Percent of 2010 ZCTA Population in blocks Located Within 1/2 Mile of a Park	ZCTA	2010 Decennial Census SF1; ESRI U.S. Parks 2014, park_dtl.gdb Series Name Data and Maps for ArcGIS® Issue 2014 - World, Europe, and United States
Health Professional Shortage Areas (Primary Care, Dental, Mental Health)	2015	Current Primary Care, Dental Health, and Mental Health Professional Shortage Areas	Shortage Areas (Non-Point Locations)	US Department of Health & Human Services Health Resources and Services Administration; http://datawarehouse.hrsa.gov/data/datadownload/hpsadownload.aspx (last accessed 29 Aug 2015)
Major Crime Rate	2013	Major Crimes (Combination Of Violent Crimes, Property Crimes, And Arson)	Law Enforcement Jurisdiction	California Attorney General - Criminal Justice Statistics Center: Crimes and Clearances http://oag.ca.gov/crime/cjsc/stats/crimes-clearances (last accessed 3 Sep 2015)

Indicator	Year	Definition	Reporting Unit	Data Source
Traffic Accidents Resulting in Fatalities	2013	Traffic Accidents Resulting in Fatalities	Point Locations	National Highway Traffic Safety Administration Fatality Analysis Reporting System (FARS) ftp://ftp.nhtsa.dot.gov/fars/2013/DBF/ (lass accessed 8 Sep 2015)
Pollution Burden	2014	Cal EnviroScreen Pollution Burden Scores Indicator (based on ozone and PM2.5 concentrations, diesel PM emissions, drinking water contaminants, pesticide use, toxic releases from facilities, traffic density, cleanup sites, impaired water bodies, groundwater threats, hazardous waste facilities and generators, and solid waste sites and facilities)	Tract	California Office of Environmental Health Hazard Assessment CalEnviroScreen Version 2.0 http://oehha.ca.gov/ej/ces2.html
Obesity	2014	Children Overweight for age (does not factor height); Body Mass Index – 4 level (teen only); Body Mass Index – 4 level (adult only)	County	2014 California Health Interview Survey http://ask.chis.ucla.edu/AskCHIS/tools/_layouts/AskChisTool/home.aspx#/geography (last accessed 12 Jan 2015)
Population Living Near a Transit Stop	2012	Population Weighted Centroid Distance to the Closest Fixed Public Transit Stop	Census Block Group	US EPA Smart Location Database https://edg.epa.gov/data/Public/OP/SLD/SmartLocationDb.zip (last accessed 29 Aug 2015)

General Processing Steps

Rate Smoothing

All OSHPD, as well as all single-year CDPH, indicators were collected for all ZIP codes in California. The CDPH datasets included separate categories that included either patients who did not report any ZIP code, or patients from ZIP codes whose number of cases fell below a minimum level. These patients were removed from the analysis. As described above, patient records in ZIP codes not represented by ZCTAs were added to those ZIP codes corresponding to the ZCTAs that they fell inside or were closest to. When consolidating ZIP codes into ZCTAs, any ZIP codes with no value reported were treated as having a value of 0. For OSHPD data, which, unlike CDPH data, had clearly masked values, if two or more ZIP codes were combined into a single ZCTA, and at least one of those ZIP codes had a value reported, all other ZIP codes with a masked value were treated as having values of 0. Thus OSHPD ZCTA values were recorded as NA only if all ZIP codes contributing values to them had masked values reported for all associated ZIP codes.

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 (EBR) were created for all indicators possible[46]. 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 EBR 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, it also has a secondary benefit of better preserving the privacy of patients within the ZCTAs.

EBR were calculated for each indicator using the appropriate base population figure reported for ZCTAs in the American Community Survey 5-year estimate tables: overall EBR for ZCTAs were calculated using total population; and sex, age, and normalized race/ethnicity EBR were calculated using the appropriate corresponding population stratification. In cases where multiple years of data were aggregated, populations for the central year were used and multiplied by the number of years of data to calculate rates. For OSHPD data, 2012 population data was used. For multi-year CDPH indicators (2010 – 2012), 2011 data were used. Population data from 2012 were used to calculate single-year CDPH indicators.

ZCTAs with NA values recorded were treated as having a value of 0 when calculating the overall expected rates for a state as a whole 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 rates were attempted for every overall indicator, but could not be calculated for certain indicators. In these cases, raw rates were used instead. The final rates in either case for H, ED, and the basic mortality indicators were then multiplied by 10,000, so that the final rates represent H or ED discharges, or deaths, per 10,000 people.

[46] Anselin, L. (2003). *Rate Maps and Smoothing.* Retrieved February 16, 2013, from http://www.dpi.inpe.br/gi

Age Adjustment

The additional step of age adjustment[47] was performed on the all-cause mortality indicator. Because the occurrence of mortality varies as a function of the age of the population, differences in the age structure between ZCTAs could obscure the true nature of the variation in its pattern. For example, it would not be unusual for a ZCTA with an older population to have higher rate mortality than a ZCTA with a younger population. In order to accurately compare the experience of mortality between these two populations, the age profile of the ZCTA needs to be accounted for. Age adjusting the rates allows this to occur.

To age adjust these indicators, we first calculated age stratified rates by dividing the number of occurrences for each age category by the population for that category in each ZCTA. Because estimates of age under age 1 and from ages 1 to 4 were not available in the American Community Survey datasets used in this analysis, the proportion of the population under age 5 that was also under age 1 was calculated using 2010 decennial Census data for each geographic area. These proportions were then compared to the age under 5 indicators from the American Community Survey datasets for each geographic area to estimate the values for the population under 1 and from 1 to 4. These estimated values were then used to calculate age stratified rates. Age-stratified EBR were used whenever possible. Each age-stratified rate was then multiplied by a coefficient that gives the proportion of California's total population that was made up by that age group as reported in the 2010 Census. The resulting values are then summed and multiplied by 10,000 to create age adjusted rates per 10,000 people.

Benchmark Rates

A final step was to obtain or generate benchmark rates to compare the ZCTA level rates to. Benchmarks for all OSHPD indicators were calculated at the HSA, county, and state levels. HSA rates were calculated by first summing the total number of cases and relevant populations for each indicator across all ZCTAs in the HSA. ZCTAs with NA values were treated at this stage as having a value of 0. Smoothed EBR rates were then calculated for each HSA using a broader set of HSAs.

County benchmark rates were calculated as raw rates for each county, or in the case of small counties, group of counties, using the relevant population values. State rates were calculated as raw rates by first summing all county level values (treating NA values 0), and then dividing these values by the relevant population value. HSA, county, and state benchmark rates were also provided for CDPH data. HSA benchmarks were calculated in a process similar to that described above for OSHPD HSA benchmarks: the total number of cases and relevant populations were summed for each indicator across all ZCTAs in the HSA, and used to calculate smoothed EBR rates using a broader set of HSAs.

County and state benchmark rates were either calculated using CDPH data reported at the county and state level[48,49], or else obtained from the County Health Status Profiles 2014[50]. The resulting benchmark values for CDPH and OSHPD indicators were all reported as rates per 10,000 unless the original indicator was reported using some other standard, as described below.

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[47] Klein, R. J., & Schoenborn, C. A. (2001). *Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20.* Hyattsville, Maryland: National Center for Health Statistics. -

[48] California Department of Public Health. (2010,2011,2012). *Ten Leading Causes of Death, California Counties and Selected City Health Departments*. Retrieved July 7, 2015, from http://www.cdph.ca.gov/data/statistics/Documents/VSC-2012-0520.pdf; - http://www.cdph.ca.gov/data/statistics/Documents/VSC-2011-0520.pdf; http://www.cdph.ca.gov/data/statistics/Documents/VSC-2010-0520.pdf -

[49] California Department of Public Health. (2015a, July 17). Retrieved from Center for Health Statistics and Informatics: Vital Statistics - Query System.: http://www.apps.cdph.ca.gov/vsq/ -

[50] California Department of Public Health. (2015b, July 2). Retrieved from County Health Status Profiles 2014: - http://www.cdph.ca.gov/programs/ohir/Documents/OHIRProfiles2014.pd

Processing for Specific Indicators

Additional processing was needed to create the Community Health Vulnerability Index (CHVI), the CDPH-derived health outcome indicators, as well as some of the other health factor indicators. The process used to calculate these indicators are described in this section below.

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[51]. The CHVI uses the same basic set of demographic indicators to address health care disparities as outlined in the CNI, but these indicators are aggregated in a different manner to create the CHVI. For this report, the following nine indicators were obtained from the 2013 American Community Survey 5-year Estimate dataset at the census tract level:

- Percent Minority
- Population 5 Years or Older Who Speak Limited English
- Percent 25 or Older Without a High School Diploma
- Percent Unemployed
- Percent Families with Children in Poverty
- Percent Households 65 years or Older in Poverty
- Percent Single Female-Headed Households in Poverty
- Percent Renter-Occupied Households
- Percent Uninsured

All census tracts that crossed ZCTAs within the HSA were included in the analysis. 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, and the tract with the minimum value for that same indicator within the study area received a 0. All scaled indicators were then summed to form the final CHVI. Areas with higher CHV values therefore represent locations with relatively higher concentrations of the target index populations, and are likely experiencing greater health care disparities.

CDPH-derived Health Outcome Indicators

Infant Mortality Rate

The infant mortality rate reports the number of infant deaths per 1,000 live births. It was calculated by dividing the number of deaths for those with ages below 1 from the years 2010 - 2012 by the total number of live births for the same time period (using smoothed EBR), and multiplying the result by 1,000.

Teen Pregnancy Rate

The teen pregnancy rate reports the number of live births to mothers under the age of 20 per 1,000 females between the ages of 15 and 19. It was calculated by dividing the number of live births to mothers whose age at delivery was under 20 reported in the years 2010 – 2012 by three times the total population of females from ages 15 to 19 in 2011 (using smoothed EBR), and multiplying the result by 1,000.

Life Expectancy at Birth

Life expectancy at birth values are reported in years, and were derived from period life tables created in the statistical software program R[52] using the Human Ecology, Evolution, and Health Lab's[53] example period life table function. This

[51] Barsi, E. L., & Roth, R. (2005). The "Community Need 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

[52] R Development Core Team. (2015). R: A language and environment for statistical computing. Vienna, Austria: .R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, URL http://www.R-project.org.

function was modified to calculate life tables for each ZCTA, and to allow the life table to be calculated from pre-calculated, smoothed, age-stratified mortality rates based on mortality reported in given age categories from the years 2010 – 2012.

Years Potential Life Lost (75)

Years Potential Life Lost (75) is a metric that can be used to compare health status across populations that better accounts for premature loss of life than many other metrics[54]. It was calculated here following the method described by Dranger and Remington[54]. In brief, this involved calculating EBR smoothed age stratified death rates using CDPH data from 2010 – 2011. For each age stratification group under 75 years of age, the midpoint age of the group was subtracted from 75, and the resulting value was multiplied by the smoothed age stratified rate. The resulting values for each age stratification were then age-adjusted using a 2010 California base population. These values were then individually multiplied by 10,000 and summed across all age groups to estimate the years of potential life lost before age 75 out of 10,000 people.

Health Factors

Additional specific processing was conducted to derive several health factor indicators. These include the diversity index, major crime rates, park access, and the ZCTA-level Modified Retail Food Environment Index (mRFEI). Details on their calculation are provided below.

Diversity Index

The diversity index was calculated to measure the racial and ethnic diversity of geographic regions within the HSA. It was calculated using concepts from Iceland[55], but using Shannon's evenness index[56] rather than the specific methodology described therein. The diversity index represents how evenly the population within a given geographic unit is divided between the following seven racial/ethnic groups (described previously): Asian, Black, Hispanic, American Indian, Pacific Islander, White, and Other or Two or More Races. Diversity index values range between 0 and 1, with a value of 0 in areas where the entire population belongs to just one racial/ethnic group and a value of 1 in areas with population evenly divided between the seven groups. Readers interested in the specifics of index calculation are referred to the previously listed sources.

Major Crime Rates

Major crimes reported in the State of California Department of Justice's Crime Data reports are listed by reporting police agency. In order to estimate major crime rates, these values need to be associated with particular geographic areas, and then divided by those area populations. This was done for this report by comparing the names of police agencies to populations reported for "places" (including both incorporated and unincorporated areas) by the US Census. Both crime and population data were obtained for 2013.

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[53] Human Ecology, Evolution, and Health Lab. (2009, March 2). *Life tables and R programming: Period Life Table Construction*. Retrieved February 16, 2013, from Formal Demography Workshops, 2006 Workshop Labs: http://www.stanford.edu/group/heeh/cgi-bin/web/node/75

[54] Dranger, E., & Remington, P. (2004). YPPL: A Summary Measure of Premature Mortality Used in Measuring the Health of Communities. *Wisconsin Public Health & Health Policy Institute Issue Brief, 5*(7), 1-2. Retrieved May 27, 2015, from http://uwphi.pophealth.wisc.edu/publications/issue-briefs/issueBriefv05n07.pdf

[55] Iceland, J. (2004). *The Multigroup Entropy Index (Also Known as Theil's H or the Information Theory Index).* US Census Bureau. Retrieved June 20, 2015, from http://www.census.gov/housing/patterns/about/multigroup_entropy.pdf

[56] Beals, M., Gross, L., & Harrell, S. (2000). *Diversity Indices: Shannon's H and E*. Retrieved June 20, 2015, from University of Tennessee Knoxville, The Institute for Environmental Modeling: http://www.tiem.utk.edu/~gross/bioed/bealsmodules/shannonDI.html

Many reporting agencies, such as those associated with hospitals, transit and freight rail lines, university campuses, and state and federal agencies, did not correspond to a specific census place. Internet searches were used to identify the Census places they were associated with, and their populations were added to those places. For example, the crimes reported by a University police department were added to the city or county that the university campus was located in. For areas where this was unclear based on the name alone, Internet searches were conducted to determine the place an agency fell inside of. Because reported crimes for agencies were organized by county, if the crimes for an agency could not be associated with any specific place, its reported crimes were grouped together with those for the county sheriff's department.

To calculate rates, the total number of crimes for each Census place resulting from the process described above were divided by the population of that place and multiplied by 10,000 to report the number of crimes per 10,000 in that place. For crimes reported for (or grouped with) the county sheriff's department, the county population was modified by subtracting the total population of all Census places within the county with reported crimes. This meant that the major crime rate reported for the county was reporting not the total county's crime rate, but the rate of crimes occurring in those portions of the county that were not otherwise covered by another reporting agency.

Overall county major crime rates were, however, calculated for benchmarking purposes by summing the total number of major crimes reported by any agency within the county, dividing that by the total population of the county, and multiplying the result by 10,000. For further detail as to which specific crimes are covered within the "major crime" category, interested readers are referred to the State of California Department of Justice's Crime Data reports, available online at: http://oag.ca.gov/crime.

Park Access

The park access indicator reports the percentage of the 2010 population residing within each ZCTA that lives in a Census block that intersects a one-half mile buffer around the closest park. Esri's US Parks data set[57], which includes the location of local, county, regional, state, and national parks and forests, was used to determine park locations.

Modified Retail Food Environment Index (mRFEI)

The Modified Retail Food Environment Index (mRFEI) indicator reports the percentage of the total food outlets in a ZCTA that are considered healthy food outlets. Values below 0 are given for ZCTAs with no 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[58] using ZIP code-level data obtained from the US Census Bureau's 2013 County Business Pattern datasets. Healthy food retailers were defined based on North American Industrial Classification Codes (NAICS), and included:

- Large grocery stores: NAICS code 445110, with 50 or more employees
- Fruit and vegetable markets: NAICS 445230
- Warehouse clubs: NAICS 452910

Food retailers that were considered less healthy included:

- Small grocery stores: NAICS code 445110, with 1 – 4 employees
- Limited-service restaurants: 722513
- Convenience stores: 445120

To calculate the mRFEI, ZIP code values were converted to ZCTAs using previously described processes. The total number of health food retailers was then divided by the total number of healthy and less healthy food retailers for each ZCTA, and the result was multiplied by 100 to calculate the final mRFEI value for that ZCTA. HSA mRFEI benchmark values were

[57] Esri. (2010). U.S. and Canada Detailed Streets. *Esri Data & Maps: StreetMap* (10 edition)

[58] 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

calculated by first summing the total number of each type of food retailer that fell within the HSA, and then by following the same approach.

Appendix B: Detail Analytic Methodology

The purpose of this appendix is to provide a detailed description of the analytical methodologies utilized in the 2016 Community Health Needs Assessment. It begins with a general methodological overview of the project, and then provides a more detailed description of the methods used to identify 2016 Communities of Concern, identify and prioritize significant health needs, and identify the resources available in the HSA to address health needs.

Overview

As illustrated in Figure B1 below, the project was conducted using alternating data collection and analysis stages. The project began with a definition of the hospital service area based on the definition used for the previous 2013 Community Health Needs Assessment. Area-wide primary and secondary data were then collected for the defined HSA. Primary data included interviews of multiple key informants who were selected based on their ability to speak to conditions across the HSA. Secondary data included the health factor and health outcome indicators described in detail in Appendix A, as well as the Community Health Vulnerability Index (CHVI) values for each HSA ZCTA.

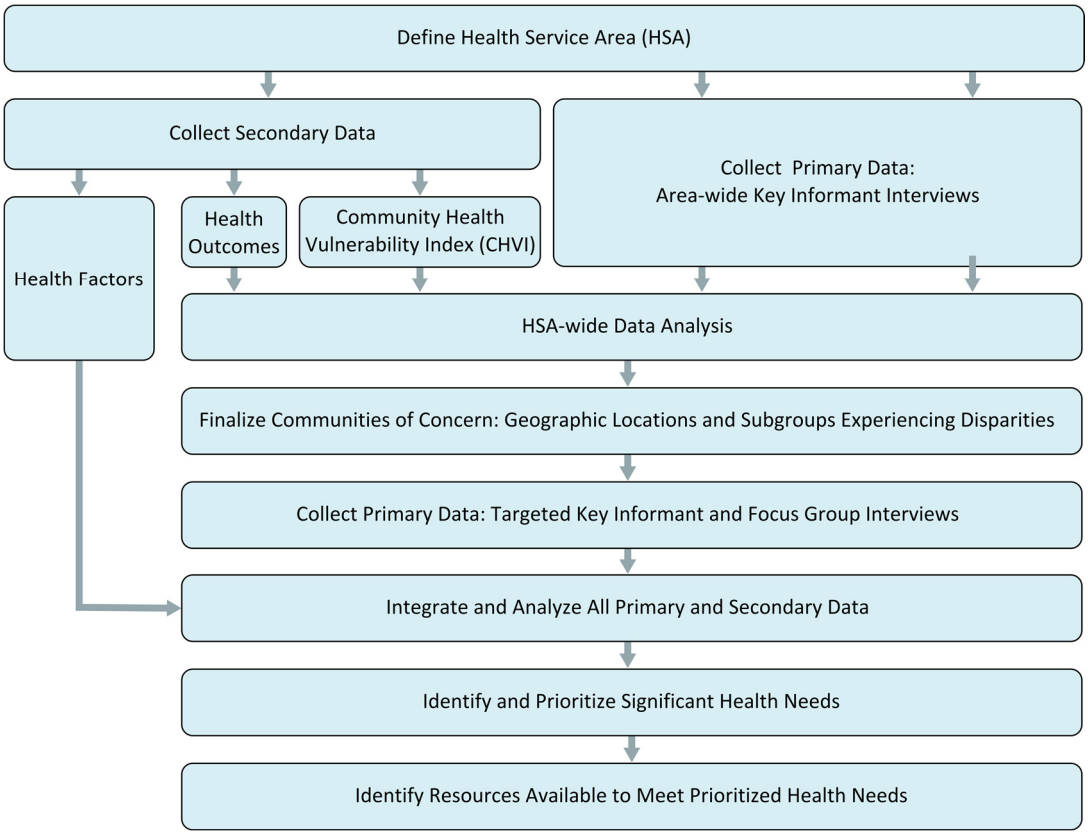

Figure B1: 2016 CHNA process model

2016 Communities of Concern were then defined following an HSA-wide analysis of the secondary health outcome indicators and CHVI values and area-wide key informant interviews. This included both a consideration of geographic areas, identified through secondary data analysis, as well as subgroups experiencing disparities, based on an analysis of the area-wide primary data.

The 2016 Communities of Concern were then used to identify what are referred to as “targeted” key informants and focus groups. These targeted primary data sources were selected based on their ability to speak to the needs of particular geographic locations or subgroups experiencing disparities. Overall primary data, and secondary data for the Communities of Concern, were then integrated to identify the significant health needs for the HSA. Significant health needs were then prioritized based on analysis of the primary data. Finally, resources available within the HSA to address health needs were identified.

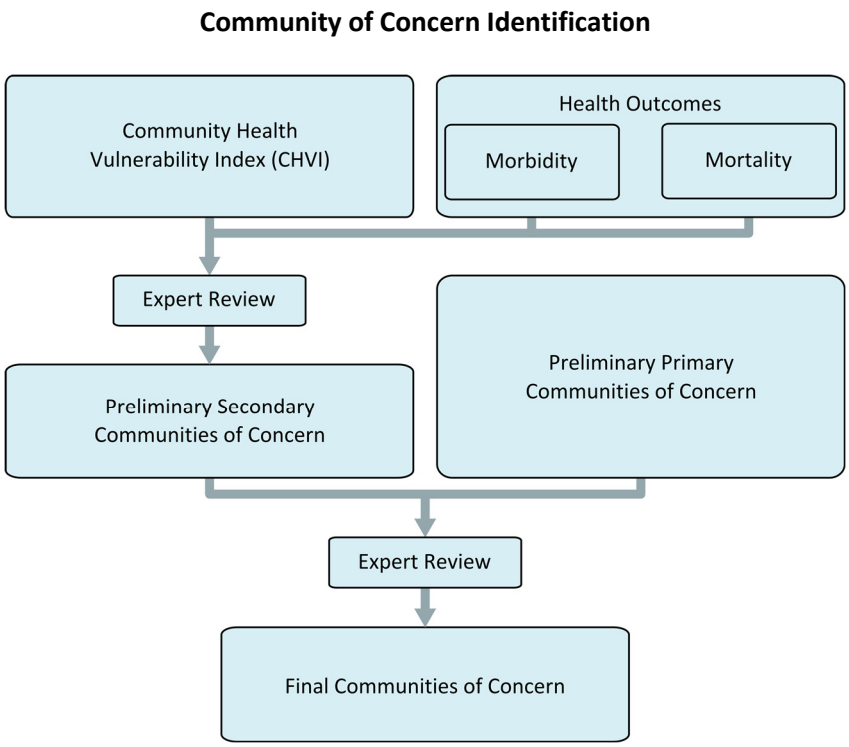

Figure B2: Community of Concern Identification Process

Communities of Concern are used to represent those geographic locations or population subgroups within the HSA that are likely experiencing the greatest overall heath disparities. As illustrated in Figure B2 above, the 2016 Communities of Concern were identified through a process that drew upon both primary qualitative data as well as secondary quantitative data. Three main secondary data inputs were used in this analysis: the census tract-level Community Health Vulnerability Index (CHVI); representing health outcomes and mortality data from CDPH, and morbidity data in the form of emergency department and hospital discharge date obtained from OSHPD.

An evaluation procedure was developed for each of these datasets and applied to each ZCTA within the HSA. In order to be classified as a preliminary secondary Community of Concern, a ZCTA had to meet one of the following three selection criteria:

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

Morbidity
The processes for reviewing ZCTAs based on morbidity were substantially more complicated than those used for the 2013 Communities of Concern or the CHVI. It began by selecting a subset of emergency department and hospitalization visit discharge rate indicators obtained from OSHPD, given in Table B1 below. Next, the values reported for each indicator in that ZCTA were compared to the lowest of the county and state benchmark rates. If a given ZCTA had a value higher than this benchmark for a given indicator, it was given a value of 1 for that indicator. If its value was below this benchmark, it was given a value of 0.

Table B1: OSHPD emergency department and hospitalization visit discharge rate indicators used in Community of Concern identification

OSHPD Emergency Department and Hospitalization Visit Discharge Rate Indicators Used in

Community of Concern Identification
Female Breast Cancer, Colorectal Cancer, Lung Cancer, Male Prostate Cancer, Diabetes, Heart Disease, Hypertension, Kidney Diseases, Stroke, HIV, STIs, Tuberculosis, Assault, Intentional Self Injury, Unintentional Injury, Mental Health, Mental Health: Substance Abuse, Asthma, COPD, Hip Fracture, Osteoporosis, Oral/Dental Diseases

Once these comparisons were made for each indicator in each ZCTA, the total recoded values (0 or 1) were summed for each ZCTA across all indicators to create a morbidity index value. ZCTAs that fell within the top 20% of this morbidity index met the Community of Concern morbidity selection criteria.

Mortality

The process for reviewing ZCTAs based on mortality was very similar to that used for morbidity. A subset of CDPH mortality rates, as well as associated derived indicators, was identified for inclusion in the analysis, and is shown in Table B2. As with the morbidity analysis, ZCTA values for each indicator were compared to the better of the appropriate county and state benchmarks, and ZCTAs with indicator values worse than this benchmark were recoded to 1, while ZCTAs with indicator values better than the worst benchmark were recoded to 0.

Table B2: Mortality related indicators used in Community of Concern identification

CDPH Mortality-related Indicators Used in Community of Concern Identification
Diseases of the Heart, Cancer, Stroke, Chronic Lower Respiratory Disease, Alzheimer's Disease, Unintentional Injuries, Diabetes Mellitus, Influenza and Pneumonia, Chronic Liver Disease and Cirrhosis, Hypertension, Intentional Self-Injury, Kidney Diseases, Age-Adjusted Mortality, Infant Mortality Rate, Years Potential Life Lost (75), Life Expectancy at Birth

The main difference between the mortality and morbidity approaches is that instead of all mortality-related indicators being weighted equally, as with the morbidity approach, a relative weighted scheme was developed for the mortality-related indicators.

Expert judgment weights were developed using an Analytical Hierarchy Approach (AHP)[59]. This approach used a comparison matrix completed by an internal Community Health Insight subject area expert to rate the relative importance between each pair of mortality indicators in the analysis. These pair-wise importance comparisons were then processed to generate a priority matrix used to weight the mortality indicators. Indicators receiving a higher prioritization value had more weight in determining which ZCTAs would be included as preliminary secondary Communities of Concern.

The recoded (0 or 1) values for each indicator in each ZCTA were then multiplied by the corresponding indicator weight, and the resulting values were summed across all indicators for each ZCTA to create a mortality index. The ZCTAs that fell within the top 20% of this mortality index met the Community of Concern mortality selection criteria.

Integration of Secondary Criteria

Any ZCTA that met one of the three selection criteria (CHVI, morbidity, and mortality) was reviewed for inclusion as a 2016 Community of Concern. 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 (key informant interviews).

[59] Saaty, Thomas. 1980. *The Analytic Hierarchy Process: Planning, Priority Setting, Resource Allocation.* New York: McGraw-Hill.

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 2016 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 2016 Communities of Concern.

Significant Health Need Identification

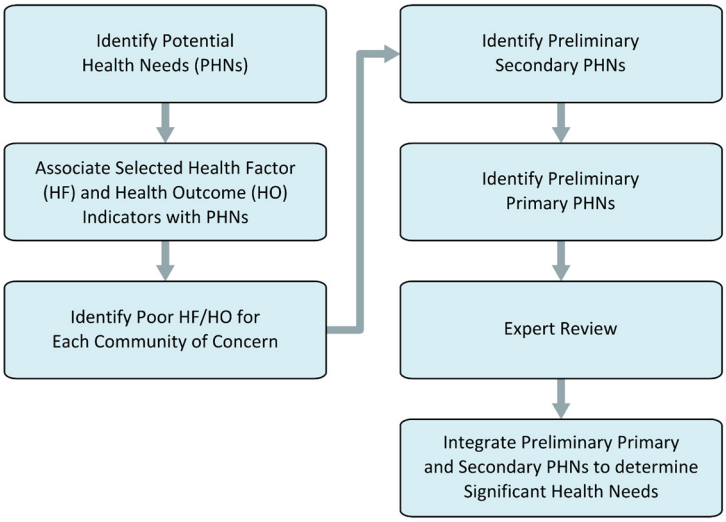

Figure B3: Significant Health Need identification process

The general methods through which significant health needs (SHNs) were identified are shown in Figure B3 above 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 in multiple 2013 CHNA reports, and then supplementing this list based on a preliminary analysis of the primary qualitative data collected for the 2016 CHNA. This resulted in a list of 10 PHNs for the HSA, shown in Table B2 below.

Table B2: Potential health needs

2016 Potential Health Needs (PHNs)	
PHN1	Access to mental / behavioral / substance abuse services
PHN2	Access to quality primary care health services and prescription drugs
PHN3	Access to affordable, healthy food
PHN4	Safe and violence-free environment
PHN5	Access to dental care and preventative services
PHN6	Pollution-free living environment
PHN7	Access to basic needs, such as housing and employment
PHN8	Access to transportation and mobility
PHN9	Access to specialty care
PHN10	Access to health education and health literacy

The next step in the process was to identify primary and secondary indicators associated with each of these health needs as shown in Table B3 below. Primary indicator associations were used to guide coding of the primary qualitative data sources to specific PHNs.

Table B3: Primary and secondary indicators associated with potential health needs -

	Health Need	Quantitative Indicators	Qualitative Indicators
PHN1	Access to mental/behavioral/substance abuse services	• CDPH – Suicide • OSPHD – Mental Health (ED/H) • Mental Health – Substance Abuse (ED/H) • OSHPD – Intentional Self-Injury (ED/H) • Health Professional Shortage Area: Mental Health	• Self-injury • Mental health and coping issues • Substance abuse • Smoking • Stress • Mentally ill homeless • PTSD
PHN 2	Access to quality primary care health services and prescription drugs	• OSHPD – Total ED Discharge Rate • OSHPD – Female Breast Cancer (ED/H) • OSHPD – Colorectal Canter (ED/H) • OSHPD – Male Prostate Cancer (ED/H) • OSHPD – Total Hospital Discharge Rate • OSHPD – PQI • Health Professional Shortage Area – Primary Care • Uninsured	• Quality of care • Access to care • Health insurance • Care for cancer/cancer occurrence • Indicators in PQI: diabetes, COPD, CRLD, HTN, HTD, asthma, pneumonia
PHN 3	Access to affordable, healthy food	• CDPH – Cancer • CDPH – Diabetes • CDPH – Heart Disease • CDPH – Hypertension • CDPH – NEP • CDPH – Stroke • OSHPD – Diabetes (ED/H) • OSHPD – Heart Disease (ED/H) • OSHPD – Hypertension (ED/H) • OSHPD – NEP (ED/H) • OSHPD – Stroke (ED/H) • USDA-defined Food Deserts • Modified Retail Food Environment Index	• 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
PHN 4	Safe and violence-free environment	• OSHPD – Assault (ED/H) • OSHPD – Mental Health (ED/H) • OSHPD – Mental Health: Substance Abuse (ED/H) • CHIS – Binge Drinking • Traffic Accidents with Fatalities	• Crime rates • Violence in the community • Feeling unsafe in the community • Substance abuse: alcohol and drugs • Access to safe parks

	Health Need	Quantitative Indicators	Qualitative Indicators
		• Major Crimes • Park Access	• Pedestrian safety • Safe streets • Safe places to be active
PHN 5	Access to dental care and preventive services	• OSHPD – Dental (ED/H) • Health Professional Shortage Area: Dental	• Any issues related to dental health • Access to dental care
PHN 6	Pollution-free living environment	• CDPH – Cancer • CDPH – Chronic Lower Respiratory Disease • OSHPD – Asthma (ED/H) • OSHPD – COPD (ED/H) • OSHPD – Lung Cancer (ED/H) • CHIS: Adult and Teen Current Smokers • Pollution Score	• Smoking • Unhealthy air, water, housing, • Health issues: asthma, COPD, CLRD, lung cancer
PHN 7	Access to basic needs, such as food, housing, jobs	• CDPH – Age-adjusted all-cause mortality • CDPH – Infant mortality rate • CDPH – Life expectancy at birth • People per occupied housing unit • Housing unit vacancy rate • Percent with no diploma • Median Household Income • Percent below the federal poverty level • Public assistance • Renters • Unemployed	• Employment and unemployment • Poverty • Housing issues • Homelessness • Education access • Community quality of life
PHN 8	Access to transportation and mobility	• Households with no vehicle • Distance to transit stop greater than ½ mile	• Physical access issues • Cost of transportation • Ease of transportation access • No car
PHN 9	Access to specialty care	• OSHPD – Diabetes (H) • OSHPD – Heart disease (H) • OSHPD – Hypertension (H) • OSHPD – Stroke (H) • OSHPD - Nephritis, nephrotic syndrome and nephrosis (H) • OSHPD – PQI • CDPH – Diabetes • CDPH – Heart disease • CDPH – Hypertension • CDPH - Nephritis, nephrotic syndrome and nephrosis	• Seeing a specialist for health conditions • Diabetes related specialty care • Specialty care for: HTD, HTN, stroke, kidney diseases
PHN 10	Access to health education and health literacy	• CHIS – Adult and teen current smokers	• Factors related to preventing disease or

	Health Need	Quantitative Indicators	Qualitative Indicators
		• CHIS – Binge drinking • CDPH – Influenza and pneumonia • CDPH – Unintentional injury • CDPH – Diabetes • CDPH – Heart disease • CDPH – Hypertension • CDPH – Stroke • CDHP – Nephritis, nephrotic syndrome and nephrosis • CDPH – Teen birth rate • OSHPD – HIV (ED/H) • OSHPD – STI (ED/H) • OSHPD – TB (ED/H) • OSHPD – Unintentional injuries (ED/H) • OSHPD – Diabetes (ED/H) • OSHPD – Heart disease (ED/H) • OSHPD – Hypertension (ED/H • OSHPD – Stroke (ED/H) • OSHPD – Nephritis, nephrotic syndrome and nephrosis (ED/H)	injury • Unintentional injury • Smoking and alcohol/drug abuse • Teen pregnancy • HIV/STD • TB • Influenza and Pneumonia • Health classes • Health promotion teams and interventions • Need for health literacy

Next, values for the secondary health factor and health outcome indicators identified above in each Community of Concern were compared to the worst relevant state or county benchmarks to determine if a given secondary indicator was problematic in the given Community of Concern. While some indicators were available at the ZCTA level, others were not, and so their geography was compared to the Community of Concern ZCTAs to identify surrogate values for each ZCTA. Additionally, some indicators were considered problematic if they exceeded the relevant benchmark, while others were problematic if they were below the benchmark. Table B4 below lists the ZCTA measures or surrogate values used for each secondary indicator, and describes the comparison made to the benchmark to determine if it was problematic.

Table B4: ZCTA measure for PHN identification and benchmark comparisons

Indicator	ZCTA Measure for PHN Identification	Benchmark Comparison
Life Expectancy at Birth	ZCTA Rate	Less than
Age-Adjusted All-Cause Mortality	ZCTA Rate	Greater than
Infant Mortality Rate	ZCTA Rate	Greater than
Malignant Neoplasms (Cancer) (Mortality)	ZCTA Rate	Greater than
Chronic Lower Respiratory Disease (Mortality)	ZCTA Rate	Greater than
Diabetes Mellitus (Mortality)	ZCTA Rate	Greater than
Diseases of the Heart (Mortality)	ZCTA Rate	Greater than

Indicator	ZCTA Measure for PHN Identification	Benchmark Comparison
Essential Hypertension & Hypertensive Renal Disease (Mortality)	ZCTA Rate	Greater than
Unintentional Injuries (Mortality)	ZCTA Rate	Greater than
Chronic Kidney Disease (Mortality)	ZCTA Rate	Greater than
Influenza and Pneumonia (Mortality)	ZCTA Rate	Greater than
Cerebrovascular Disease (Stroke) (Mortality)	ZCTA Rate	Greater than
Intentional Self Harm (Suicide) (Mortality)	ZCTA Rate	Greater than
Traffic Accidents Resulting in Fatalities	Number in ZCTA	Greater than 0
Assault (ED/H)	ZCTA Rate	Greater than
Asthma (ED/H)	ZCTA Rate	Greater than
Breast Cancer (ED/H)	ZCTA Rate	Greater than
Colorectal Cancer (ED/H)	ZCTA Rate	Greater than
COPD (ED/H)	ZCTA Rate	Greater than
Diabetes (ED/H)	ZCTA Rate	Greater than
Oral Cavity/Dental (ED/H)	ZCTA Rate	Greater than
HIV/AIDS (ED/H)	ZCTA Rate	Greater than
Heart Disease (ED/H)	ZCTA Rate	Greater than
Hypertension (ED/H)	ZCTA Rate	Greater than
Lung Cancer (ED/H)	ZCTA Rate	Greater than
Mental Health (ED/H)	ZCTA Rate	Greater than
Mental Health: Substance Abuse (ED/H)	ZCTA Rate	Greater than
Chronic Kidney Disease (ED/H)	ZCTA Rate	Greater than
Prostate Cancer (ED/H)	ZCTA Rate	Greater than
Intentional Self-Injury (ED/H)	ZCTA Rate	Greater than
STIs (ED/H)	ZCTA Rate	Greater than
Stroke (ED/H)	ZCTA Rate	Greater than
Tuberculosis (ED/H)	ZCTA Rate	Greater than
Unintentional Injuries (ED/H)	ZCTA Rate	Greater than
Total ED Discharges	ZCTA Rate	Greater than
Total H Discharges	ZCTA Rate	Greater than
PQI	ZCTA Rate	Greater than
Teen Pregnancy Rate	ZCTA Rate	Greater than
Binge Drinking	County Rate	Greater than state
Current Smokers	County Rate	Greater than state
Food Deserts	Does ZCTA intersect a food desert?	Yes/No
Modified Retail Food Environment Index	ZCTA Rate	Less than
Health Professional Shortage Area: Dental	Does ZCTA intersect shortage area?	Yes/No
Health Professional Shortage Area: Mental Health	Does ZCTA intersect shortage area?	Yes/No

Indicator	ZCTA Measure for PHN Identification	Benchmark Comparison
Health Professional Shortage Area: Primary Care	Does ZCTA intersect shortage area?	Yes/No
Major Crime Rate	Crime rate of jurisdiction associated with ZCTA by Sutter and Yuba County	Greater than
Park Access	ZCTA Rate	Less than
Pollution Burden	Does the ZCTA intersect Census tract with pollution burden score in the top 20% of the state?	Yes/No
Population Living Near a Transit Stop	Does the ZCTA intersect a Census block group for which the population weighted centroid distance to the closest public transit stop was 805 meters (approx. 1/2 mile) or more?	Yes/No
Median Income	ZCTA Rate	Less than
Percent Unemployed	ZCTA Rate	Greater than
Percent Uninsured	ZCTA Rate	Greater than
Percent Vacant Housing Units	ZCTA Rate	Less than
Percent Renter-Occupied Housing Units	ZCTA Rate	Greater than
Percent with Income Less Then Federal Poverty Level	ZCTA Rate	Greater than
Percent 25 or Older Without a High School Diploma	ZCTA Rate	Greater than
Percent Households with No Vehicle	ZCTA Rate	Greater than
Percent with Public Assistance	ZCTA Rate	Greater than
Average Population per Housing Unit	ZCTA Rate	Greater than

Two standards were then developed to determine whether an indicator would be considered as performing poorly across the Communities of Concern as a whole. First, an indicator could be considered as performing poorly if it had problematic values in any of the Communities of Concern. Second, an indicator could be considered if it had problematic values in at least 75% of the Communities of Concern.

Once identified using one of these two standards, poorly performing indicators were used to determine which PHNs were considered significant. While all PHNs represent actual health needs within the HSA to a greater or lesser extent, a PHN could be considered a Preliminary Secondary Health Need based on four criteria: any poorly performing associated HF/HO indicator; at least 50% of the associated HF/HO indicators were found to perform poorly; at least 66% of the associated HF/HO indicators were found to perform poorly; or at least 75% of the associated HF/HO indicators were found to perform poorly.

A similar set of standards were used to identify the Preliminary Primary Health Needs: at least 50% of the primary data sources mentioned a given PHN; at least 66% of primary data sources mentioned a given PHN; or at least 75% of primary data sources mentioned a given PHN. Allowances were also made for the possibility of a previously unrecognized health need to emerge through qualitative primary data collection. If a health need that did not fit within the previously identified PHNs was found, it was added to the list, and primary data sources were coded to count the percentage of sources mentioning that emergent health need.

These sets of criteria (any mention, 50%, 60%, 75%) were developed for both the primary and secondary analysis 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 review was used to compare the set of primary and secondary SHN 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 both primary and secondary analyses, any health PHN included in either the Preliminary Primary or Secondary PHN list was included as a final Significant Health Need for the HSA.

For this report, any indicator above the benchmark in any of the Communities of Concern was identified as poor performing. A PHN was selected as a Preliminary Secondary Significant Health need only if 50% or more of the associated indicators were identified as performing poorly. A PHN was identified as a Preliminary Primary Significant Health Needs only if it was mentioned by 70% or more of the sources as performing poorly.

Significant Health Need Prioritization

Once identified for the HSA, the final set of SHNs could be prioritized. To reflect the voice of the community, SHNs were prioritized using an analysis of the primary qualitative data, based on two approaches to quantifying the primary data: the percent of all primary data sources that referenced the SHN, and the average number of times the SHN was referenced across all data sources. These measures were developed for each SHN using NVIVO 10 Qualitative Analytical Software.

These SHN measures were next rescaled so that the SHN with the maximum value for each measure equaled 1, and all other SHNs had values appropriately proportional to the maximum value. The rescaled values were then summed to create a combined SHN prioritization index. Finally, SHNs were ranked in descending order so that the SHN with the highest prioritization index value was identified as the highest priority health need, the SHN with the second highest prioritization value was identified as the second highest priority health need, and so on.

Resource Identification Process

The following process was followed in identifying resources and cataloging them for inclusion in the final CHNA report:

1. - A search was conducted to identify all resources that meet the federal definition of a resource within the hospital service area, as designated by a set of ZCTA/ZIP codes using the following stages:
    a. - Include all resources identified in the 2013 CHNA report.
    b. - Conduct internet searches for additional resources.
    c. - Use existing area resource guides and directories where available.
    d. - Review qualitative data from key informant interviews and focus groups for additional resources not identified elsewhere.
2. - After compiling the initial list, verify that each organization or program still exists using the following - approaches: -
    a. - Internet searches.
    b. - Phone verification if needed.

Appendix C: Informed Consent

Purpose

You have been invited to participate in a community health needs assessment. This assessment helps to inform area hospitals about the needs of the communities they serve. Our Community Health Insights team will focus all questions on two basic topics 1) the health of the community, and 2) the aspects of the community which help or prevent the community from being healthy. The information gathered will be combined with that of other interviews and focus groups. Our team will summarize these findings and report these to local area hospital representatives of non-profit healthcare systems.

Procedures

The focus group discussion will attempt to capture your understanding and opinions about community health issues. Completion of the discussion will take approximately 90 minutes. Our team is requesting to record the discussion so that we can later transcribe the session. All identifying information will be removed from the interview transcript, and at the completion of the project both the tape and transcript will be destroyed.

Potential Risks or Benefits

Some of the interview questions may be emotionally charged; otherwise there are no other known risks to answering the questions presented. Each participant will receive a gift card valued at $10.00. In addition, your participation helps to inform community benefit efforts for your local non-profit hospital.

Participants' Rights

Participation in this discussion is completely voluntary; you may choose not to participate and terminate your involvement at any time you wish. However, participants who do not complete the entire discussion will not receive the $10.00 gift card.

Confidentiality

If you agree to participate, you will receive a copy of this consent form. The information you provide and anything you share with us will be kept in the strictest confidence. If a direct quote from your interview is used in the final report, a non-identifying coding system will be used.

How to Obtain Additional Information

If you have any questions or comments regarding this document, interview, or final report, please contact: Dale Ainsworth, Project Consultant at dale@communityhealthinsights.com or Heather Diaz, Project Consultant, at heather@communityhealthinsights.com

_____ _____

Participant Print and Sign Date

_____ _____

Interviewer Print and Sign Date

Appendix D: Key Informant and Focus Group Interview Guide

Key Informant Interview Guide

1) Please tell me about your current role and the organization you work for?
   a) Probe for:
      i) Public health (division or unit)
      ii) Hospital health system
   b) How would you define the community (ies) you serve?
      i) Probe for:
         (1) Specific geographic areas?
         (2) Specific populations served?
            (a) (Who? Where? Racial/ethnic make-up, physical environment (urban/ rural, large/small)
2) Describe the health of the community you serve.
   a) What are the specific health issues the community struggles with the most?
   b) Probe for:
      i) What specific locations struggle with health issues the most?
      ii) What specific groups in the community experience health issues the most?
   c) Which would you say are the most important or urgent health issues to address?
3) What are the challenges to being healthy for the community?
   a) Probe for:
      i) Health care access
      ii) Built environment
      iii) Food access
      iv) Social stressors
   b) What is contributing to the challenges you described in question 3?
4) What resources exist in the community to help people live healthy lives?
   a) Probe for:
      i) Barriers to accessing these resources.
5) What would you say has been the impact of the Affordable Care Act [may also be known as [Covered California, Obamacare, Medi-Cal, universal healthcare] on the community you serve?
6) What is needed to improve the health of your community?
   a) Probe for:
      i) Policies
      ii) Care coordination
      iii) Access to care
      iv) Environmental change
   b) Of those items you listed in question 7 above, which would you say is the most significant improvement needed? Which is second most significant? Third? And so on?
7) What other people, groups or organizations would you recommend we speak to about the health of the community?
   a) Probe for:
      i) Exact names or people and organizations
      ii) Special populations mentioned
8) Is there anything else you would like to share with our team about the health of your community?

Focus Group Interview Guide

1) Please tell me about the community that you live in?
      i) Probe for:

(1) - Specific geographic areas?

(2) - Specific populations that live there?

(a) How would you describe the people that live there?

(b) How would you describe the physical layout of the land?

2) - Describe the health of the community that you live in?

a) What are the specific health issues your community struggles with the most?

b) Probe for:

i) What specific locations struggle with health issues the most?

ii) What specific groups in the community experience health issues the most?

c) Which would you say are the most important or urgent health issues to address in your community?

3) What are the challenges to being healthy in the community that you live in?

a) - Probe for: -

i) Health care access -

ii) Built environment -

iii) Food access -

iv) Social stressors -

b) What is contributing to the challenges you just described?

4) What resources exist in the community to help people live healthy lives?

a) Probe for:

i) Barriers to accessing these resources.

5) What would you say has been the impact of the Affordable Care Act [may also be known as [Covered California, Obamacare, Medi-Cal, universal healthcare] on you or your community?

6) What is needed to improve the health of the community you live in?

a) - Probe for: -

i) Policies -

ii) Care coordination -

iii) Access to care -

iv) Environmental change -

b) Of those items you listed above, which would you say is the most significant improvement needed for your community? Which is second most significant? Third? and so on?

7) What other people, groups or organizations would you recommend we speak to about the health of your community?

a) - Probe for: -

i) Exact names or people and organizations -

ii) Special populations mentioned -

8) - Is there anything else you would like to share with our team about the health of your community?

Appendix E: Project Summary Sheet

Project Overview
Following both state and federal mandates, not-for-profit hospitals conduct community health needs assessments (CHNA) every three years. These assessments identify and prioritize the significant health needs of the communities they serve. Based on the results not-for-profit hospitals develop community health improvement or implementation plans to address particular, significant health needs.

Working collaboratively, Rideout Health, including Rideout Regional Medical Center, and Sutter Surgical Hospital – North Valley have contracted with Community Health Insights (www.communityhealthinsights.com) to conduct a CHNA for their mutual service areas. These include portions of both Sutter and Yuba Counties. Community Health Insights is a Sacramento based research consulting firm dedicated to improving the health and well being of communities across Northern California.

Project Objective
The objective of the 2016 CHNA is to identify and prioritize community health needs—defined as the basic provisions and conditions needed for the improvement and/or maintenance of health—within each hospital's service area. In particular health needs within neighborhoods and/or populations in the service area experiencing health disparities will be highlighted.

Project Deliverables
The final deliverable of this project will be a written report detailing the CHNA of each individual hospital service area. The report will be posted on each hospital's website. Comments by community members on the content of the CHNA are welcomed by each participating hospital.

Project Timeline
The CHNA will start in August 2015 and be completed by March 2016.

Project Contact
If you are interested in commenting on or participating in the CHNA in any way, please direct all inquiries to:

Dale Ainsworth, PhD
Managing Partner, Community Health Insights
530-417-1770 (cell)
dale@communityhealthinsights.com

Appendix F: List of Key Informants

Organization	Number of participants	Area of Expertise	Populations Served	Date of Interview
Harmony Health	1	Community healthcare	Community-wide with focus on Linda, CA	7/31/15
Yuba City Unified School District	1	Education, child nutrition	Community-wide	8/5/15
Salvation Army	1	Social services to vulnerable populations	Homeless, low income	8/17/15
Peachtree Healthcare	1	Primary healthcare, behavioral health, oral health services	Community-wide	8/17/15
Sutter County Children and Families Commission	1	Early childhood development needs	Children ages 0-5	8/17/15
Shady Creek Outdoor Education Foundation	1	Outdoor education for youth	Youth	8/25/15
Early Riser Kiwanis Club	1	Community health	Community-wide	8/25/15
Sutter County Public Health Division	7	Community health	Sutter County	2/3/16
Yuba County Public Health Division	2	Community health	Yuba County	3/9/16
Ampla Health	2	Community healthcare	Community-wide	5/25/16

Appendix G: List of Focus Groups

Location	Date	Number of Participants	Demographic Information
Hmong Outreach Center	2/4/16	10	Hmong women between the ages 30-60
Yuba County Health & Human Services; Yuba County Job Works	3/16/16	10	Diverse group of community residents participating in a job-training program
Salvation Army	9/29/15	13	Homeless community members
Local business	2/24/16	7	Members of Punjabi ethnic community
Live Oak WIC	1/12/16	2	Hispanic/Latino populations, agriculture workers
North Richland Neighborhood Center	1/19/16	11	Hispanic/Latino populations, agriculture workers

Appendix H: Resources Potentially Available to Meet Significant Health Needs

NOTE: Resources are in ZIP code order and include resources in Communities of Concern and surrounding areas. Community of Concern area ZIP codes are in **BOLD**.

Organization Name, ZIP code, and Website				Potential Health Need Met (X)									
Name	Zip Code	Website	Notes	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services and prescription drugs	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Access to Health Education and Health Literacy
Ampla Health - Lindhurst	95661	http://www.amplahealth.org/contact-us-at-ampla-health.html		X	X			X				X	
Ampla Health - Colusa	95832	http://www.amplahealth.org/contact-us-at-ampla-health.html		X	X			X				X	
Rideout Health Group	**95901**	http://www.frhg.org		X	X							X	
Pathways Alcohol Treatment Program	**95901**	http://www.yspathways.net/contact/locations/	Inpatient Treatment	X					X				X
Yuba County Health & Human Services, Public Health Clinic	**95901**	http://www.co.yuba.ca.us/departments/hhsd/public%20health/		X	X	X		X	X				X
Yuba County Tobacco Cessation	**95901**	http://www.co.yuba.ca.us/departments/hhsd/public%20health/tobacco.aspx											X

Organization Name, ZIP code, and Website				Potential Health Need Met (X)									
Name	Zip Code	Website	Notes	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services and prescription drugs	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Access to Health Education and Health Literacy
Yuba County Adult Services Division	**95901**	http://www.co.yuba.ca.us/departments/hhsd/aps/				X	X			X			X
Yuba County Children's Services	**95901**	http://www.co.yuba.ca.us/departments/hhsd/cws/		X		X	X		X				X
Yuba-Sutter Counties, Veteran Service Office	**95901**	http://www.co.yuba.ca.us/departments/hhsd/veterans/		X	X							X	X
Maternal Child and Adolescent Health	**95901**	http://www.co.yuba.ca.us/departments/hhsd/public%20health/MCAH.aspx										X	X
Peach Tree Clinic	**95901**	http://pickpeach.org/clinic-locations/peach-tree-linda/		X	X			X				X	
Children Health & Disability Prevention Program (CDPH)	**95901**	http://www.co.yuba.ca.us/departments/hhsd/public%20health/CHDP.aspx			X								
Yuba County WIC	**95901**	http://www.amplahealth.org/women-infants-and-children-wic-program.html				X				X			

Organization Name, ZIP code, and Website				Potential Health Need Met (X)									
Name	Zip Code	Website	Notes	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services and prescription drugs	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Access to Health Education and Health Literacy
Aegis Medical System	**95901**	http://www.aegistreatmentcenters.com		X									
California Tribal TANF	**95901**	http://cttp.net/about/office-locations/								X			X
Child Care Planning Council of Yuba & Sutter Counties	**95901**	http://www.childcareyubasutter.org/pages/contact.htm		X									X
Harmony Health Medical Clinic & Family Resource Center	**95901**	http://www.myharmonyhealth.org/Home.php			X							X	X
FREED Center for Independent Living (Transportation Voucher Program)	**95901**	http://www.freed.org/contact/		X							X		X
St. John's Episcopal Church	**95901**	http://www.saintjohnsepiscopal.org				X				X			

Organization Name, ZIP code, and Website				Potential Health Need Met (X)									
Name	Zip Code	Website	Notes	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services and prescription drugs	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Access to Health Education and Health Literacy
St. Joseph's Catholic Church	**95901**	http://www.stjoseph-marysville.org				X				X			
Yuba-Sutter Head Start	**95901**	http://www.ecenter.org								X			X
Twin City Rescue Mission	**95901**	http://tcmission.com								X			
Victor Community Support Services	**95901**	http://www.victor.org/victor-community-support-services		X									X
A Woman's Friend	**95901**	http://www.awomansfriend.org/										X	X
Marysville Immediate Care Clinic	**95901**	http://pickpeach.org/clinic-locations/marysville-immediate-care/		X	X							X	
Yuba Sutter Transit	**95901**	http://www.yubasuttertransit.com									X		

Organization Name, ZIP code, and Website				Potential Health Need Met (X)									
Name	Zip Code	Website	Notes	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services and prescription drugs	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Access to Health Education and Health Literacy
Sutter/Yuba County Mobile Dental Van	**95901**	http://www.freedentalcare.us/li/ca-sutteryuba-county-mobile-dental-vans						X					
Yuba County Mobile Dental Clinic	**95901**	http://www.mjusd.k12.ca.us/district/departments/student_services/yuba_county_mobile_dental_clinic/	Services students in the Marysville Joint Unified School District					X					
Yuba College Clinic	**95901**	https://yc.yccd.edu/student/health-clinic			X								
Yuba County Family Resource Center	**95901**	http://sutter.networkofcare.org/mh/services/agency.aspx?pid=YubaCountyFamilyResourceCenter_161_2_0			X						X		X
Child Development Center	95903	http://www.bealefss.com/child-development-center.html	Serves Yuba and Sutter county				X						X
Brownsville Clinic	95919	http://www.suttermedicalfoundation.org/snmg/locations/	Serves Yuba and Sutter county	X	X							X	

Organization Name, ZIP code, and Website				Potential Health Need Met (X)									
Name	Zip Code	Website	Notes	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services and prescription drugs	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Access to Health Education and Health Literacy
Feminist Women's Health Center	95928	http://www.womenshealthspecialists.org/	Serves the Colusa, Yuba and Sutter county									X	X
Colusa County Family Resource Center	95932	http://www.php.com/colusa-county-family-resource-center-spec-ed-annex		X	X	X		X		X			X
Colusa County Department of Health and Human Services Public Health Division California Children's Services	95932	http://www.countyofcolusa.org/index.aspx?NID=277		X	X							X	
Colusa County Senior Nutrition Program	95932	http://www.countyofcolusa.org/index.aspx?NID=286				X				X			
Homeless Prevention & Rapid Rehousing (HPRP)	95932	http://www.cgtcap.org/colusa/homeless_prevention.aspx								X			

Organization Name, ZIP code, and Website				Potential Health Need Met (X)									
Name	Zip Code	Website	Notes	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services and prescription drugs	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Access to Health Education and Health Literacy
Colusa County Veteran Services	95932	http://www.countyofcolusa.org/Directory.aspx?did=21								X			
First 5 Colusa	95932	http://first5association.org/county-commissions/colusa-county/		X	X	X		X		X			X
Colusa Regional Medical Center	95932	http://colusamedicalcenter.org			X								
Colusa Family Health Center	95932	http://www.amplahealth.org/ampla-health-centers/colusa-medical-a-dental.html			X								
Sutter County WIC	**95953**	https://www.co.sutter.ca.us/doc/government/depts/hs/ph/hs_wic				X				X			X
Live Oak Clinic	**95953**	http://pickpeach.org/clinic-locations/peach-tree-live-oak/		X	X			X				X	
Yuba County WIC	**95961**	http://www.amplahealth.org/women-infants-and-children-wic-program.html				X				X			X

Organization Name, ZIP code, and Website				Potential Health Need Met (X)									
Name	Zip Code	Website	Notes	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services and prescription drugs	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Access to Health Education and Health Literacy
Lindhurst Medical & Dental - Olivehurst Low Cost Clinic	**95961**	http://www.amplahealth.org/ampla-health-centers/lindhurst-medical-a-dental.html						X					
Pathways Alcohol Treatment Program	**95991**	http://www.yspathways.net	Substance Abuse Facility	X						X			
Fremont Medical Center (Formerly known as Rideout Health Group)	**95991**	http://www.frhg.org/Locations.aspx		X	X							X	
Buddy's House	**95991**	http://www.buddyshouse.org		X						X			
Planned Parenthood: Yuba City Health Center	**95991**	https://www.plannedparenthood.org/health-center/california/yuba-city/95991/yuba-city-health-center-2374-90130?utm_campaign=yuba-city-health-center&utm_medium=organic&utm_source=local-listing			X							X	X

Organization Name, ZIP code, and Website				Potential Health Need Met (X)									
Name	Zip Code	Website	Notes	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services and prescription drugs	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Access to Health Education and Health Literacy
Peach Tree Clinic	**95991**	http://pickpeach.org/clinic-locations/peach-tree-yuba-city/		X	X			X				X	
Peach Tree Pediatrics	**95991**	http://pickpeach.org/clinic-locations/peach-tree-yuba-city/		X	X			X				X	
Sutter Smiles Dental Van	**95991**	http://pickpeach.org/dental/sutter-smiles-dental-van/						X					
Women's Circle Nurse-Midwife Services Inc.	**95991**	http://www.yubasuttermidwife.com										X	X
Bi-County Mental Health	**95991**	https://www.co.sutter.ca.us/doc/government/depts/hs/mh/hs_mental_health		X									
Options for Change	**95991**	https://www.co.sutter.ca.us/doc/government/depts/hs/mh/sa/hs_substance_abuse		X									

Organization Name, ZIP code, and Website				Potential Health Need Met (X)									
Name	Zip Code	Website	Notes	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services and prescription drugs	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Access to Health Education and Health Literacy
Co-Dependents Anonymous for Men & Women	**95991**	http://sutter.networkofcare.org/mh/services/subcategory.aspx?tax=PN-8100.0500-120		X									
Yuba-Sutter Gleaners Food	**95991**	http://www.ysgleaners.org				X				X			
Salvation Army	**95991**	http://www.salvationarmyusa.org		X		X	X		X	X			X
Yuba City Senior Center	**95991**	https://www.co.sutter.ca.us/doc/living/seniors/liv_seniors											X
Ampla Health - Richland	**95991**	http://www.amplahealth.org/contact-us-at-ampla-health.html		X	X			X				X	
Ampla Health	**95991**	http://www.amplahealth.org/contact-us-at-ampla-health.html		X	X			X				X	
Ampla Health - Yuba City Medical	**95991**	http://www.amplahealth.org/contact-us-at-ampla-health.html		X	X			X				X	

Organization Name, ZIP code, and Website				Potential Health Need Met (X)									
Name	Zip Code	Website	Notes	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services and prescription drugs	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Access to Health Education and Health Literacy
Ampla Health - Yuba City Pediatrics	**95991**	http://www.amplahealth.org/contact-us-at-ampla-health.html		X	X			X				X	
Twin Rivers Crisis Center	**95991**	http://sutter.networkofcare.org/mh/services/agency.aspx?pid=TwinRiversCrisisCenter_161_2_0		X					X	X			
First Steps Perinatal Day Treatment Program	**95991**	https://www.co.sutter.ca.us/doc/government/depts/hs/mh/sa/hs_substance_abuse										X	X
St. Isidore's Food Locker	**95991**	http://www.stisidore-yubacity.org/foodlkr/foodlocker.html				X				X			
Mother Hubbard's Cupboard	**95991**	http://www.needhelppayingbills.com/html/yuba_city_food_pantries.html				X				X			
The Christian Assistance Network	**95991**	http://sutter.networkofcare.org/mh/services/agency.aspx?pid=ChristianAssistanceNetwork_161_2_0				X				X			
Hands of Hope	**95991**	http://www.ychandsofhope.org								X			
Sutter Diagnostic and Outpatient Center	**95991**	http://www.suttermedicalfoundation.org/snmg/locations/										X	

Organization Name, ZIP code, and Website				Potential Health Need Met (X)									
Name	Zip Code	Website	Notes	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services and prescription drugs	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Access to Health Education and Health Literacy
Sutter Medical Care Center and Ambulatory Surgery	**95991**	http://www.suttermedicalfoundation.org/snmg/locations/			X								
Sutter Obstetrics and Gynecology	**95991**	http://www.suttermedicalfoundation.org/snmg/locations/										X	
Sutter Poole Family Medicine	**95991**	http://www.suttermedicalfoundation.org/snmg/locations/			X								
Sutter Surgical Hospital - North Valley	**95991**	http://www.suttermedicalfoundation.org/snmg/locations/										X	
Yuba City Outpatient Clinic	**95991**	http://www.northerncalifornia.va.gov/visitors/Yuba_City.asp		X	X							X	
Bridges to Housing	**95991**	http://www.bridgestohousing.net					X			X			
Casa De Esperanza	95992	http://sutter.networkofcare.org/veterans/services/agency.aspx?pid=CasadeEsperanza_882_17_0	Serves the Colusa, Yuba and Sutter county				X						
Sutter Feather Down Family Practice	95993	http://www.suttermedicalfoundation.org			X								

Organization Name, ZIP code, and Website				Potential Health Need Met (X)									
Name	Zip Code	Website	Notes	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services and prescription drugs	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Access to Health Education and Health Literacy
Feather River Tribal Health	95993	http://www.frth.org		X	X	X		X			X		
Chronic Disease Prevention Program	95993	https://www.co.sutter.ca.us/doc/government/depts/hs/ph/chronicdisease											X
Sutter County Public Health	95993	https://www.co.sutter.ca.us/doc/government/depts/hs/ph/hs_public_health		X		X		X		X			X
St. Andrew's Presbyterian Church	95993	http://www.standrewpcusa.org				X							
National Association of Counties - Prescription Drug Discount Card Program	95993	http://www.nacorx.org/			X								
Nor-Cal Center on Deafness	95993	http://www.norcalcenter.org/yubacity		X									X
Family SOUP	95993	http://www.familysoup.org/contact-us/		X							X		X

Organization Name, ZIP code, and Website				Potential Health Need Met (X)									
Name	Zip Code	Website	Notes	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services and prescription drugs	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Access to Health Education and Health Literacy
Yuba-Sutter Meals on Wheels		http://sutter.networkofcare.org/mh/services/agency.aspx?pid=MealsonWheelsProgram_161_2_0	Serve all but 95932			X				X			
Dine Around Town		http://agencyonaging4.org/services/other_services/	Serve all but 95932			X				X			