A Community Health Needs Assessment

of the

Solano County Health Service Area

Conducted on behalf of

Kaiser Permanente, NorthBay Healthcare, Sutter Solano Medical Center, Solano County Public Health, and the Solano Coalition for Better Health

Conducted by:

Valley Vision

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Acknowledgements

This report was prepared by Valley Vision on behalf of Solano County Community Health Needs Assessment (CHNA) Collaborative. Through the course of the CHNA project, many organizations and individuals contributed input on the health issues and conditions impacting their communities or the communities they serve. We gratefully acknowledge the contributions of these participants, many of whom shared deeply personal challenges and experiences with us. We hope that the contents of this report serve to accurately represent their voices.

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EXECUTIVE SUMMARY

Community Health Needs Assessment (CHNA) Background/Purpose

This Community Health Needs Assessment (CHNA) serves two purposes: to fulfill the requirements of the nonprofit hospitals to conduct a CHNA every three years and to adopt an implementation strategy to meet the community health needs identified through the CHNA, and to satisfy the Community Health Assessment (CHA) for Solano County Public Health, in preparation for the development of their Community Health Improvement Plan (CHIP).

Assessment Process and Methods

This report documents the processes, methods, and findings of the CHNA conducted on behalf of the Solano CHNA Collaborative, a collaborative of three nonprofit hospital systems – Kaiser Permanente, NorthBay Healthcare and Sutter Health Sacramento Sierra Region – Solano County Department of Public Health and the Solano Coalition for Better Health serving Solano County, California. The Solano CHNA Collaborative project was conducted over a period thirteen months, beginning in April 2015 and concluding in May 2016. For the purposes of this assessment, the health service area (HSA) was defined by the 18 ZIP codes that make up Solano County.

The objective of the 2016 CHNA was:

> *To identify and prioritize community health needs and identify resources available to address those health needs, with the goal of improving the health status of the community at large and for specific locations and/or populations experiencing health disparities.*

The following research questions were used to guide the 2016 CHNA:

1. What is the community or health service area (HSA) served by each hospital in the CHNA Collaborative?
2. What specific geographic locations within the community are experiencing social inequities that may result in health disparities?
3. What is the health status of the community at large as well as of particular locations or populations experiencing health disparities?
4. What factors are driving the health of the community?
5. What are the significant and prioritized health needs of the community and requisites for the improvement or maintenance of health status?
6. What are the potential resources available in the community to address the significant health needs?

To meet the project objectives, a defined set of data collection and analytic stages were developed. Data collected and analyzed included both primary or qualitative data, and secondary or quantitative data. To determine geographic locations within the HSA affected by social inequities, data were compiled and analyzed at the census tract and ZIP code levels as well as mapped by geographic information systems (GIS). Additionally, indicators were collected from a variety of secondary sources (see Appendix A) to assess overall health status and disparities in health outcomes. Overall, more than 170 indicators were included in the CHNA.

Community input and primary data on health needs were obtained via interviews with service providers and community key informants and through focus groups with medically underserved, low-income, and

minority populations. In total, primary data for the CHNA included 11 key informant interviews with 24 participants and 6 focus groups conducted with 67 community member participants.

Summary of Prioritized Significant Health Needs

The following significant health needs were identified through the CHNA process and are presented in order of priority according to a set of criteria outlined in the body of the CHNA report. For greater detail on the indicators that were collected and analyzed, as well as findings at the sub-county level and by race and ethnicity, please refer to the section: *Assessment Data and Findings*.

1. **Access to behavioral health services**: The issue of behavioral health (mental health and substance abuse) was marked by a high rate of ED visits due to mental health in Solano County compared to the state benchmark. Substance abuse was also marked by an elevated rate of both ED visits and hospitalizations in the Solano County service area compared to the state benchmarks. Primary data participants expressed that the need for mental health and substance abuse services far outweighs the current number of resources available in the service area. Key Informant and focus group interviewees talked about barriers to mental health treatment including stigma and lack of places to go when having a mental health crisis. Participants also mentioned concerns with the amount of substance abuse observed in their communities.

2. **Healthy eating and active living (HEAL)**: The importance of healthy eating and regular physical activity was marked by a lower rate of grocery stores in Solano County compared to the state benchmark. Additionally, physical inactivity among both youth and adults was higher for Solano County compared to the state benchmarks. Likewise, the Solano County rate for ED visits due to diabetes was 342.51 per 10,000 population, clearly over the state benchmark of 209.15 per 10,000 population. Primary data participants voiced concerns about the low access to affordable and healthy food options in their Solano County community. Key informant and focus group interviewees shared that unhealthy food and beverage products are easily accessible and cost less than a bag of fruit or vegetables. Particular issues included concerns that people have to go outside of their communities to access healthy foods and that healthy food options are particularly limited for those of a lower socio-economic status.

3. **Safe, crime and violence free communities**: The need for safe, crime and violence free communities was marked by high rates of ED visits due to assault in Solano County compared to the state rate. Additionally, the domestic violence rate in Solano County was 66.74 incidents per 10,000 population, above the state rate at 40.18 per 10,000 population. An analysis of major crimes data in the Solano County HSA, which included a combination of violent crimes, property crimes and arson, was two and a half times higher for the service area at 789.10 per 10,000 population, compared to the state benchmark at 312.65 per 10,000 population. Key informant and focus group interviewees expressed concern about crime and violence in their communities and mentioned that these communities often feel unsafe and non-walkable. Particular issues included gang violence, domestic violence and drug use. Participants also shared concerns about the safety of parks in their communities, including observations of drug and gang activity even during the day.

4. **Disease prevention, management and treatment**: The need for disease prevention, management and treatment was marked by elevated rates of both ED visits and hospitalizations due to asthma in Solano County compared to the state benchmarks. Additionally, rates of ED visits and hospitalizations for heart disease were elevated in the county compared to state rates. ED visits due to hypertension were significantly higher in Solano County at 724.05 per 10,000 population, nearly two times the state rate of 408.99 ED visits per 10,000 population. Key informant and focus group interviewees noted cancer and diabetes as being problematic in their communities. Participants also

voiced concerns over the amount of asthma seen in adults and children, as well as high rates of sexually transmitted infections (STIs) in Solano County.

5. **Affordable and accessible transportation**: The need for affordable and accessible transportation was marked by elevated rates of commuting to work alone in a car and commuting over 60 minutes to work each day. Seventy-five percent of workers reported commuting to work alone in a car compared to the state benchmark at 73%. Additionally, 14% of workers commuted to work more than 60 minutes each day compared to the state at 10%. Key informant and focus group interviewees expressed concern over the lack of transportation infrastructure in Solano County. Particular issues included transportation barriers to get to doctors' appointments as well as other resources like healthy foods and employment opportunities.

6. **Basic needs (food security, housing, economic security, education**): The issue of basic needs was marked by high rates of school suspensions in Solano County compared to the state benchmark. The rate of suspensions as reported by the Solano County HSA was 12.40 per 100 students, three times above the state rate of 4.04 per 100 students. Additionally, 47% of 3 and 4 year olds in the Solano County HSA are in preschool, below the state benchmark of 49%. This data is important as access to early education is a social determinant of health. Key informant and focus group participants voiced concerns over the lack of resources for adults and youth experiencing homelessness. Participants talked about working multiple jobs just to feed their families, while others talked about the service area as a "bedroom community," having to go outside of their communities to get well-paying jobs to support their families. Safe, affordable housing was also mentioned as a priority for community members.

7. **Access to high quality health care and services**: The issue of access to care, including oral health and maternal and infant health, was marked by 45.8% of female Medicare enrollees that have had a mammogram in the past two years, lower than the state percent of 59.3%. Additionally, the rate of ED visits due to dental/oral diseases was higher in Solano County compared to the state rate. The percent of live births with the mother receiving prenatal care in the first trimester was lower in Solano County at 78% compared to the state benchmark at 84%. Key informant and focus group interviewees voiced concerns over the shortage of health care providers in the region, specifically those offering specialty care services. Participants also expressed concern about oral hygiene, especially in youth, including the need for more oral health education in schools.

8. **Pollution-free living and work environments:** The issue of pollution-free environments was marked by a high rate of ED visits due to asthma in Solano County, at 276.21 ED visits per 10,000 population, nearly twice the state benchmark of 148.86 per 10,000 population. The percent of adults over the age of 18 in Solano County that had ever been told by a doctor that they have asthma was more than twice the state percent. Additionally, the rate of smoking for adults and teens was 11.1%, slightly higher than the state rate of 10.8%. Key informant and focus group participants expressed concern over pesticide use in agricultural crops near their communities. Other issues expressed include the high density of freeways throughout Solano County and concerns with second hand smoke, especially in low-income housing units.

ASSESSMENT PURPOSE AND ORGANIZATIONAL COMMITMENT

Purpose for the Community Health Needs Assessment (CHNA)

This Community Health Needs Assessment (CHNA) serves two purposes: to fulfill the Federal requirements of the not for-profit hospitals, and to contribute to the Community Health Assessment (CHA) for Solano County, a requisite for national public health accreditation from the Public Health Accreditation Board (PHAB).

All nonprofit hospitals must conduct a community health needs assessment (CHNA) every three years and adopt an implementation strategy to meet the community health needs identified through the CHNA. On December 31, 2014, the Internal Revenue Service published the final regulations on requirements related to CHNAs [Section 501(r)]. The final rule provides guidance on the way the CHNA must be conducted and the components that must be included in the CHNA report. As with the earlier proposed regulations, a hospital facility must conduct a CHNA at least once every three years and issue a CHNA report that is widely available to the public. The CHNA report must define the community served by the hospital, assess the health needs of the community, prioritize those health needs and identify potential measures and resources available to address the health needs. To clarify the term "health needs," the final rule expands the examples of health needs to 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, behavioral, and environmental factors that influence health in the community."

The final rule also specifies that a hospital facility solicit and take into account input received from, at a minimum, the following three sources: (1) at least one state, local, tribal, or regional governmental public health department (or equivalent department or agency) with knowledge, information, or expertise relevant to the health needs of the community; (2) members of medically underserved, low-income, and minority populations in the community, or individuals or organizations serving or representing the interests of such populations; and (3) written comments received on the hospital facility's most recently conducted CHNA and most recently adopted implementation strategy (to inform and influence future CHNAs and implementation strategies). In addition, the CHNA report must describe the process and criteria used in prioritizing the significant health needs identified and require a hospital facility to take into account community input not only in identifying significant health needs but also in prioritizing such health needs. For second and subsequent CHNAs, the CHNA must also evaluate the impact of any actions the hospital took to address the identified significant health needs from previous reports.

CHNA Collaborative

The 2016 CHNA for Solano County was completed as part of a collaboration of the three major health systems in Solano County - Kaiser Permanente, NorthBay Healthcare and Sutter Health - Solano County Public Health, and the Solano Coalition for Better Health. The Solano CHNA Collaborative served to collectively conduct the 2016 CHNA and to support a coordinated approach to community benefit planning for five hospitals and Solano County Public Health including:

- **Kaiser Permanente**: Kaiser Permanente Vacaville Medical Center and Kaiser Permanente Vallejo Medical Center
- **NorthBay Healthcare**: NorthBay Medical Center and VacaValley Hospital
- **Sutter Health Sacramento Sierra Region**: Sutter Solano Medical Center
- **Solano County Public Health Department**

Organization of the Report

The remainder of this report continues with the description of the health service area (HSA) including a description of geographical areas of the HSA where low income, underserved, and minority populations reside. The report then details the CHNA process and methods, including both the process model used for the CHNA and the theoretical model used in the assessment for determination of quantitative indicators to be included. Primary data collection methods, participant demographics and methods are also detailed. Assessment findings are provided in accordance with the theoretical model used for the Solano County CHNA in the following categories: morbidity and mortality, risk behaviors, and living conditions. A detailed description of the prioritized significant health needs is provided with the corresponding secondary indicators and qualitative findings. The report then closes with a summary of available resources, a conclusion, and corresponding appendices.

DEFINITION OF COMMUNITY SERVED

Community Definition

For the purposes of this report, the health service area (HSA) is the 18 ZIP codes which make up Solano County, California. The HSA was designated as Solano County because all Solano CHNA Collaborative partners serve communities within the county. Due to data availability, the HSA was examined two separate ways. One approach was to use Solano County as the service area. While this approach was the most natural and best reflected the focus area of collaborative members, it did not allow for a consideration of variation in conditions across the county. An alternative approach was also used in which the service area was defined based on the ZIP Code Tabulation Areas (ZCTAs), as defined by the US Census Bureau. In this approach, all ZCTAs that had a meaningful overlap with Solano County were included in the analyses. The benefit of this approach was that it allowed for the calculation of morbidity and mortality rates based on data available at the ZIP code level. This allowed for a better understanding of how these conditions varied within the county. Figure 1 and Table 1 show the Solano County HSA.
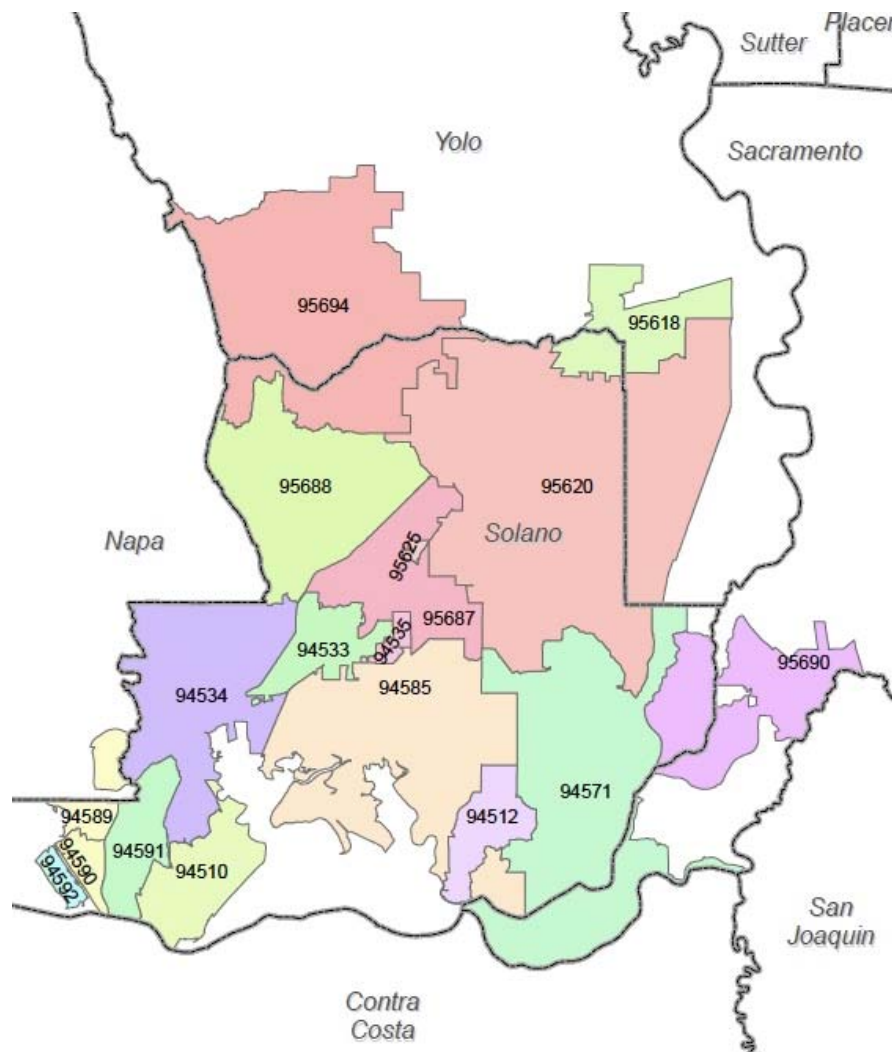
Figure 1: Solano County Hospital Service Area

Table 1. Solano County ZIP Codes and Corresponding Areas/Communities

ZIP Code	Community/Area
94510	Benicia
95618	Davis
95688	West Vacaville
94534	West Fairfield
95687	East Vacaville
95625	Elmira
94512	Birds Landing
94535	Travis AFB
94592	Mare Island
94571	Rio Vista
95620	Dixon
94585	Suisun City
95694	Winters
94591	East Vallejo
95690	Walnut Grove
94533	East Fairfield
94590	South/Central Vallejo
94589	North Vallejo

Demographics of the HSA

The health service area of Solano County is located in Northern California and has approximately 417 thousand residents. As Tables 2 and 3 show, the area is considerably diverse in population, economic stability (income and poverty), and insurance status. Table 2 shows the total population count for the Solano County HSA, the median age of the HSA, and the median income compared to the state benchmarks. Table 3 provides information on the presence of medically underserved, low income, and minority residents in Solano County.

Population characteristics

Table 2: Census population counts, median age, and median income for the Solano County HSA, compared to the state

Area	Population	Median Age	Median Income
94510	27,294	44.2	$88,930
94512	231	41.0	$142,885
94533	69,067	32.9	$55,413
94534	36,560	39.7	$92,676
94535	4,728	21.3	$50,970
94571	8,025	56.9	$54,223
94585	28,823	32.8	$70,374
94589	30,364	36.8	$56,068
94590	35,263	37.4	$41,819
94591	53,548	40.1	$73,509
94592	562	38.0	$105,352
95690	2,015	46.1	$61,150
95694	10,008	40.8	$55,163
95618	27,262	29.5	$82,313
95620	20,845	34.6	$71,261
95625	188	30.4	$75,114
95687	66,129	38.0	$73,583
95688	34,599	38.4	$79,452
Solano County	417,258	37.1 years	$67,177
CA State	37,659,181	35.4 years	$61,094

Source: 2013 American Community Survey 5-year Estimates

The population of Solano County makes up 1% of all residents in the State of California. The population count at the ZIP code level varied from 188 residents in ZIP code 95625 (Elmira) to 69,067 residents in ZIP code 94533 (East Fairfield). The median age of the county is similar to the median age of the state. The ZIP code with the youngest median age was 94535 (Travis AFB) with a median age of 21.3 years, and the ZIP code with the oldest median age was 94571 (Rio Vista) with a median age of 56.9 years. The median income for the county was higher than the state median income, at $67,177. The ZIP code in the HSA with the lowest median income was 94590 (South/Central Vallejo) at $47,819 per year compared to the highest median income in ZIP code 94512 (Elmira) at $142,885 per year, a range of nearly $95,000 dollars a year.

Table 3: Percent living below federal poverty level, percent uninsured and percent minority for the Solano County HSA

Area	Percent below Federal poverty (less than or equal to 100% FPL)	Percent Uninsured	Percent Minority (Hispanic or non-White)
94510	5.7%	8.6%	36.4%
94512	0.0%	0.0%	52.4%
94533	17.9%	14.6%	70.9%
94534	5.4%	6.9%	53.2%
94535	12.7%	0.9%	34.1%
94571	10.9%	21.2%	31.3%
94585	13.4%	11.6%	76.0%
94589	17.7%	20.7%	83.6%
94590	25.0%	20.9%	70.6%
94591	12.5%	12.4%	72.7%
94592	6.0%	3.7%	58.2%
95690	14.0%	11.8%	52.6%
95694	10.7%	16.6%	51.1%
95618	18.8%	5.9%	41.8%
95620	11.2%	14.7%	49.7%
95625	11.7%	0.0%	0.0%
95687	9.1%	8.4%	46.4%
95688	10.1%	11.3%	37.1%
Solano County	13.0%	12.9%	59.5%
CA State	15.9%	17.8%	60.3%

Source: 2013 American Community Survey 5-year Estimates
*Values in blue are those that fall above or below the desired direction in comparison to the county, state or national benchmarks.

The percent of population living in poverty was lower in Solano County compared to the state benchmark. The Solano HSA ZIP code with the highest percent of population in poverty was 94590 (South/Central Vallejo) at 25.0% compared to the lowest percent poverty in ZIP code 94534 (West Fairfield) at 5.4%.

Data collected on percent uninsured for the Solano County HSA was from 2013, prior to implementation of the Affordable Care Act (ACA). The percent of residents uninsured was lower for Solano County compared to the state benchmark. The ZIP code with the highest percent uninsured was 94571 (Rio Vista) at 21.2% and the lowest percent was 0.9% in ZIP code 94535 (Travis AFB). The Solano County percent of minority residents was 59.5%, similar the state at 60.3%. An examination of areas throughout the county revealed a large degree of diversity. ZIP code 94589 (North Vallejo) showed 83.6% minority population, which is drastically different from the Rio Vista ZIP code of 94571 that had 31.28% minority residents.
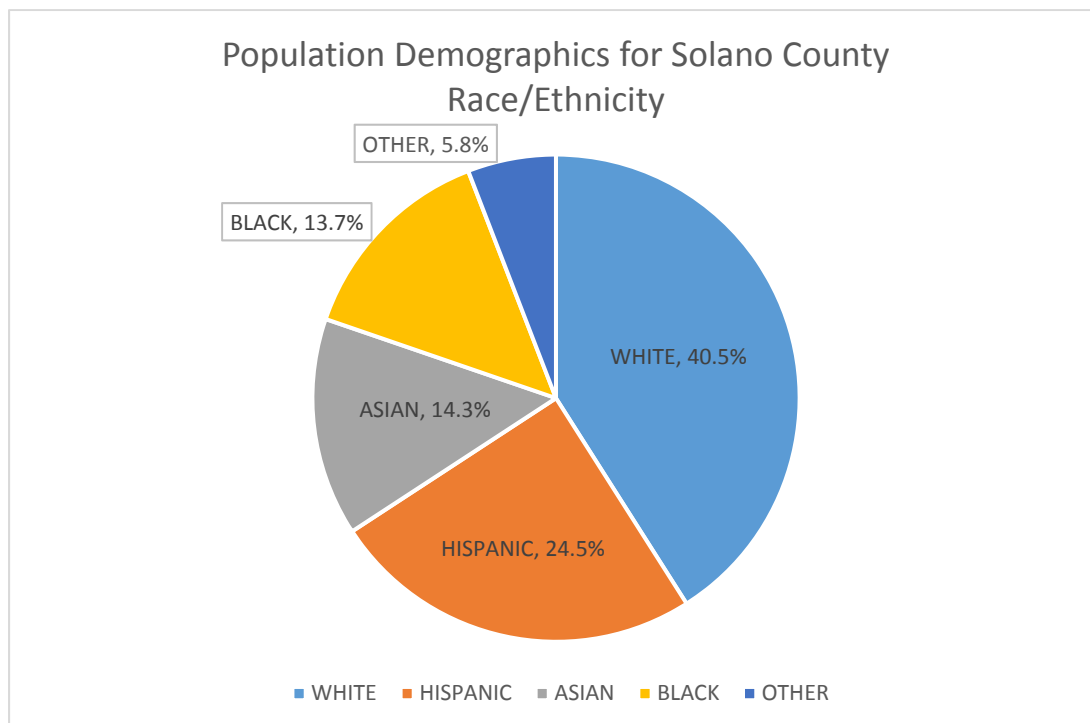
Figure 2: Population demographics for Solano County by race/ethnicity
Source: 2013 American Community Survey, 5-year Estimates

Demographic data for the Solano HSA showed that Whites make up the highest percent of residents in Solano County, followed by Hispanics, Asians and Blacks.

Identifying Geographical Disparities - Focus Communities

In an effort to identify geographic locations throughout the HSA that suffer from social inequities that may result in poor health outcomes, a 4-step process was used. This process included:

1. Identification of ZIP Codes with unfavorable social inequities values through analysis of 22 indicators (e.g., poverty and educational attainment). ZIP codes that scored in the top 20% of having the worst values were considered as a potential Focus Community.
2. Identification of ZIP Codes with census tracts that have high Community Health Vulnerability Index (CHVI) scores. For a complete description of the CHVI, please refer to Appendix A.
3. Expert input from area-wide service providers, including Solano County Health and Human Services.
4. Focus Communities identified in the 2013 Community Health Needs Assessment.

These inputs provided a unique perspective on social determinants of health within the HSA and were considered both separately and collectively when selecting Focus Communities. Though similar social inequity and CHVI indicators were analyzed, the CHVI examined vulnerability within the ZIP codes to identify pockets by census tract where more health inequities may exist. A ZIP code was identified as a Focus Community if three out of the four criteria were met and/or expert opinion of the Collaborative stressed the importance of including additional geographic areas.

The Focus Communities for Solano County are found in Figure 3 and listed in Table 4. Figure 3 displays the 6 ZIP code Focus Communities, denoted by diagonal hash marks. The specific ZIP codes and area names are provided in Table 4, with the census population for each.
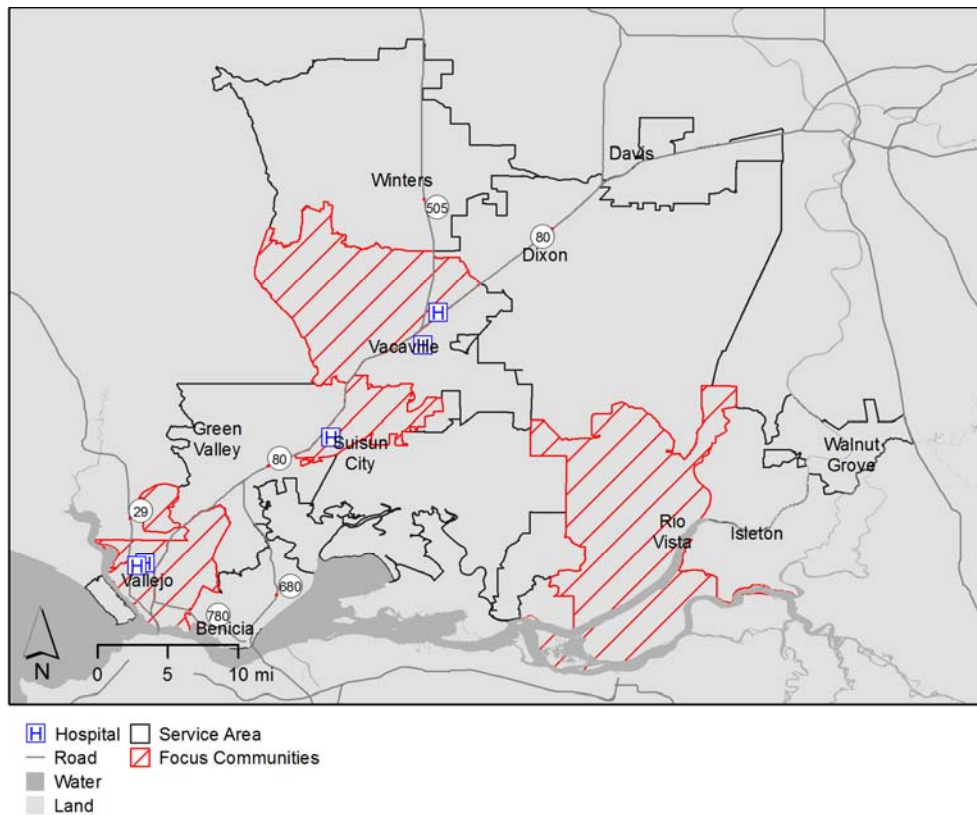
Figure 3: Focus Communities for the Solano County HSA

Table 4: Identified Focus Communities for the Solano County HSA

ZIP Code	Community/Area*	Population
94533	East Fairfield	69,067
94571	Rio Vista	8,025
94589	North Vallejo	30,364
94590	South/Central Vallejo	35,263
94591	East Vallejo	53,548
95688	West Vacaville	34,599
Total Population in the Focus Communities		230,866
Total Population in the HSA		417,258
Percent of the HSA in the Focus Communities		55%

Source: US Census, 2013
*ZIP code and community/area name is approximate here and throughout the report.

Primary data collected in this assessment confirmed the location of vulnerable populations in the Solano County HSA in the previously mentioned Focus Communities. A specific question of key informant and community members in primary data collection was the identification of geographical areas and populations in the county that were experiencing health inequities. Results from this questioning indicated that specific geographic areas like the Crest, downtown Vallejo, downtown Fairfield, River

Road in Rio Vista, Dana Drive in Fairfield, and Dan Foley Park were areas of concern. In terms of population groups, data indicated that African Americans, Filipinos and Hispanics/Latinos were among the most mentioned as populations in need of improved health. A major determination of the above mentioned groups was directly related to the absence or presence of poverty in these populations. Poverty appeared to be the biggest influence in determining their vulnerability to poor health, a finding detailed later in this report.

ASSESSMENT PROCESSES AND METHODS

Process Overview

Solano Collaborative Process Model

The Solano Community Health Needs Assessment (CHNA) collaborative project was conducted over a period of thirteen months, beginning in April 2015 and concluding in May 2016. The project was conducted using a series of data collection and analytical phases. The CHNA process began with the collection and analysis of secondary data indicators of social inequities and proceeded with collection of both "upstream" and "downstream" health indicators. Primary data collection began with interviews of area health experts such as public health and social service representatives. The first stage of data analysis resulted in the identification of vulnerable communities (e.g., low-income, medically underserved and minority populations), which then guided further primary data collection including community member focus groups. These data were considered together with the data in the Kaiser Permanente Community Commons Data Platform (CCDP) to develop potential health need categories that provided an organizational structure to integrate these numerous inputs, analyze the data and identify the significant health needs for the health service area (HSA). The significant health needs were then prioritized using established criteria, and resources available to address the identified needs were compiled for the final report. The overall process to conduct the CHNAs is depicted in the CHNA Process Model (Figure 4).
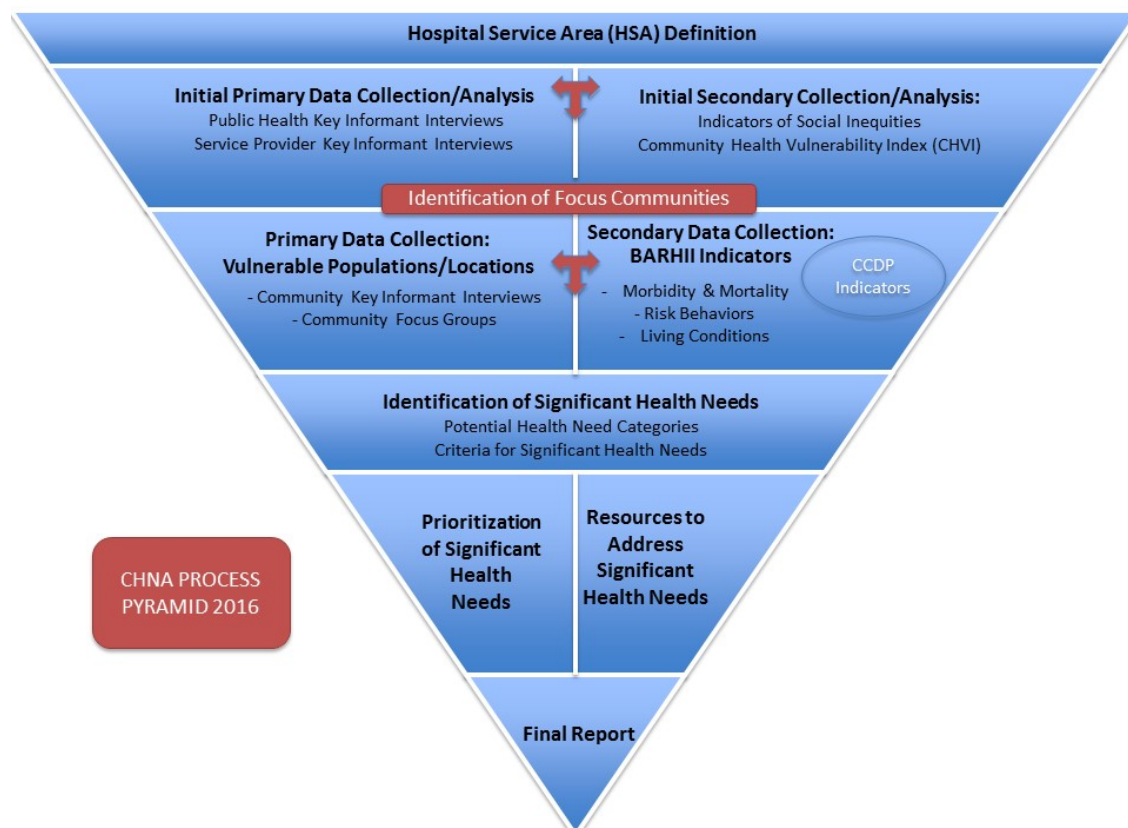
Figure 4: CHNA Process Model

Bay Area Regional Health Inequities Initiative (BARHII) Model

Selection and organization of quantitative indicators used in this assessment was guided by a conceptual framework developed by the Bay Area Regional Health Inequities Initiative (BARHII) (Figure 5). The BARHII Framework demonstrated the connection between social inequities and health and focuses attention on measures that had not characteristically been within the scope of public health departments. Valley Vision used the BARHII framework to organize quantitative indicators, as well as frame the primary data collection tool, to capture both "upstream" and "downstream" factors influencing health in the HSA. The BARHII framework was also used in the organization of this report beginning in the "Findings" section of the report. The findings are presented in the report starting with the most "downstream factors" like mortality and morbidity, then are followed by risk behaviors and living conditions. Social inequities data is spread throughout the body of the report.

A PUBLIC HEALTH FRAMEWORK FOR REDUCING HEALTH INEQUITIES
BAY AREA REGIONAL HEALTH INEQUITIES INITIATIVE
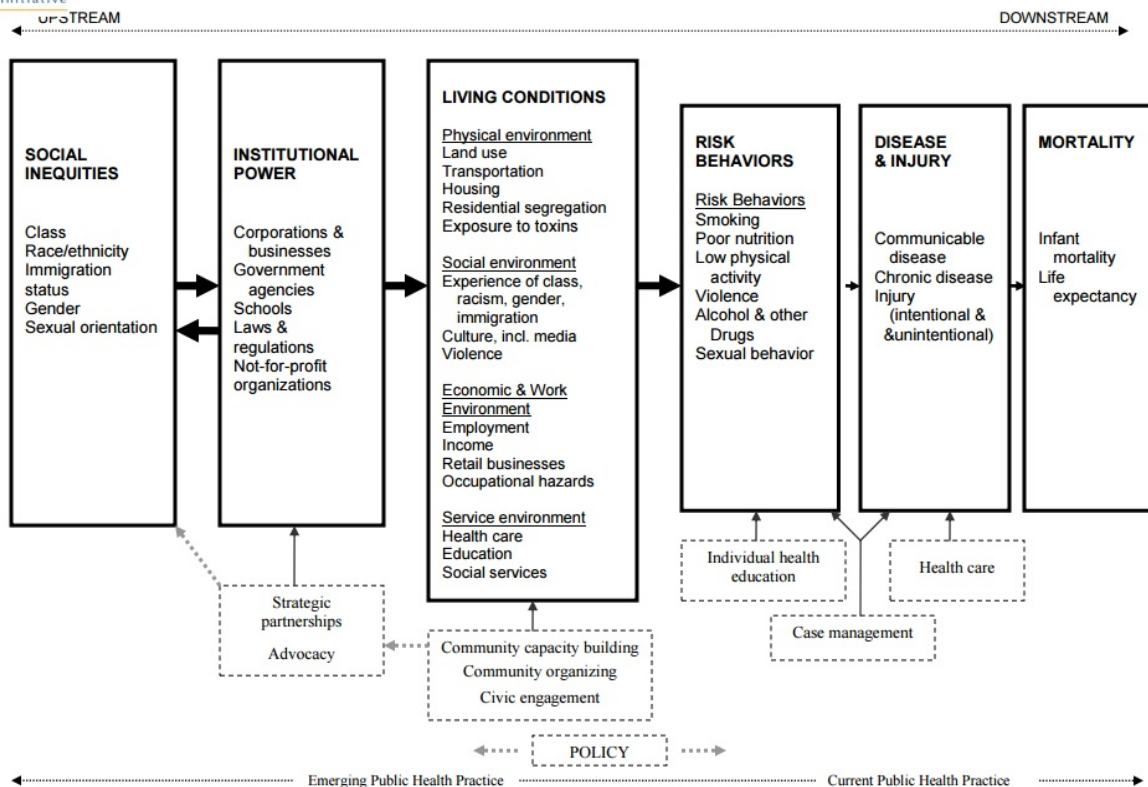
Figure 5: Bay Area Regional Health Inequities Initiative (BARHII) Model[1]

Secondary Data Collection – Processing and Analyzing

Data Collection: Overview

This section serves to provide a brief overview of the secondary data collection, processing and analysis approaches used to support the Community Health Needs Assessment (CHNA). For additional detail, including detailed project methodology, please refer to Appendices A and B.

The secondary data supporting the CHNA were collected from a variety of sources and were processed in multiple stages before they were used for analysis. The selection of secondary data indicators was guided by the Bay Area Regional Health Inequities Initiative (BARHII) Framework previously illustrated in Figure 5. Specific secondary data indicators were selected to represent the concepts organized in the six categories in the BARHII model that reflect both "upstream" and "downstream" factors influencing health. A number of general principles guided the selection of secondary data indicators to represent these concepts. First, only indicators associated with concepts in the BARHII framework 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 health service area (HSA). Finally, indicators were only collected from data sources deemed reliable and reputable, with a preference for indicators that were more current than those used in the 2013 CHNA report.

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[1] Bay Area Health Inequities Initiative (BARHII). BARHII Framework. Available at: http://barhii.org/framework/. Accessed Jan 20, 2016.

Mortality data were primarily obtained from the California Department of Public Health (CDPH), and morbidity data were primarily obtained from Office of Statewide Health Planning and Development (OSHPD). These data were processed using methods described in detail in Appendix A to result in a set of indicators for risk behaviors, disease/injury, and mortality. Data from CDPH were used to develop mortality rates and broader measures of health status for each ZIP code in the HSA. Data from OSHPD were used to develop hospitalization (H) and emergency department (ED) discharge rates for each ZIP code in the HSA. The majority of indicators pertaining to living conditions and other "upstream" factors in the report were obtained from the US Census Bureau. These indicators primarily focus on the socio-demographic characteristics of the population within the HSA, and are also listed in Appendix A. Health outcome and health behaviors were also collected from the Kaiser Permanente Community Commons Data Platform (CCDP) to compliment the indicators already collected from additional sources. Indicators in the CCDP were only selected for final analysis and inclusion if they did not duplicate indicators that were pulled from other sources. A detailed list of indicators collected for the 2016 CHNA is in Appendix A, Data Dictionary and Processing.

The secondary data were processed in multiple stages before they were analyzed. The three basic processing steps included rate smoothing, age-adjustment and obtainment of benchmark rates. A detailed description of this process is outlined in Appendix A, Data Dictionary and Processing.

Primary Data Collection

Overview of Primary Data Collection

Community input was provided by a broad range of community members through the use of key informant interviews and focus groups. Individuals with the knowledge, information, and expertise relevant to the health needs of the community were consulted. These individuals included representatives from the local public health department as well as leaders, representatives, and members of medically underserved, low-income, and minority populations. Additionally, where applicable, other individuals with expertise of local health needs were consulted. For a complete list of individuals who provided input, see Appendices E and F.

Methodology for collection and interpretation

Primary data were collected from May 2015-November 2015. Instruments used in primary data collection included a participant informed consent form, a demographic questionnaire, the interview question guide and a project summary sheet. All participants were given an informed consent form prior to their participation that 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). Participants were also asked to complete a voluntary questionnaire to compile the demographics of all key informant and focus group participants (Appendix D). The same interview guide was used for key informant interviews and community focus groups with slight modifications for focus groups conducted in Spanish and focus groups with youth or low-literacy populations. In brief, the guide prompted participants to share: (1) the quality of life in their communities; (2) the health issues they see and experience in their communities; (3) the most urgent or priority health needs of their communities; and (4) the resources available to help address health needs (see Appendix D for full interview guide). A project summary sheet (Appendix D) was also given to all participants to provide them with information about the project as well as contact information for the Community Health Needs Assessment (CHNA) staff leading the interviews.

Key Informant Interviews

Key informant interviews were conducted with area health experts and service providers familiar with health issues as well as places and populations experiencing health disparities within the health service area (HSA). Early interviews were conducted with county Public Health Officers and other public health and social service experts. Input from the initial set of group key informant and service provider interviews solicited expert opinion on vulnerable locations and populations within the HSA. This information was used to conduct additional key informant interviews with service providers in low-income, medically underserved and minority communities.

A total of 11 key informant interviews were completed for the Solano HSA which are listed in Appendix E. Key informants represented the following sectors: community based organizations (42%), health care (4%), public health (8%), and social services (13%), with some interviewees representing multiple sectors. These 24 key informants reported working with the following populations: low-income (83%), medically underserved (63%), and racial or ethnic minorities (67%). The racial and ethnic minority groups specified by interviewees included: Latino/Hispanic, African American, Asian Pacific Islander, Southeast Asian, Native American, Slavic and refugees from the former Soviet Union. In addition, key informants specified working with the following vulnerable sub-populations: individuals experiencing homelessness, individuals diagnosed with a developmental disability or special needs, serious mental illness and/or substance abuse disorders, pregnant women, teen parents, single parents, undocumented individuals, those with language barriers, individuals identifying as lesbian, gay, bisexual or transgender (LGBT), individuals who are HIV positive, foster youth, children and seniors who have experienced abuse and/or neglect, and those utilizing public assistance programs.

Community Focus Groups

Focus group interviews were conducted with community members representing vulnerable populations and locations identified through the initial analysis of key informant input. Recruitment consisted of referrals from designated service providers and the Solano CHNA Collaborative, as well as direct outreach from the Valley Vision CHNA Team to acquire input from medically underserved, minority and low-income populations and/or community members living in vulnerable locations.

Within the Solano County HSA, 6 focus groups were conducted with 67 participants who were medically underserved, impoverished, socially and/or linguistically isolated and/or those who had chronic conditions. Of the approximately 67 people who completed demographic cards, the median age was 31, 78% identified as female, 20% as male, and 2% as other. In addition, 42% indicated they were not high school graduates, 12% indicated they were not covered by health insurance, and 51% received some form of public assistance. The self-identified racial composition of focus group participants is presented in Figure 6.

Solano County Health Service Area (HSA)
Focus Group Participants Race/Ethnicity (N = 67)

Race/Ethnicity	Percentage
Hispanic/Latino	45%
African American/Black	22%
White/Caucasian	17%
Asian	17%
Other	9%
Native American/Alaska Native	6%
Hawaiian Native/Pacific Islander	5%
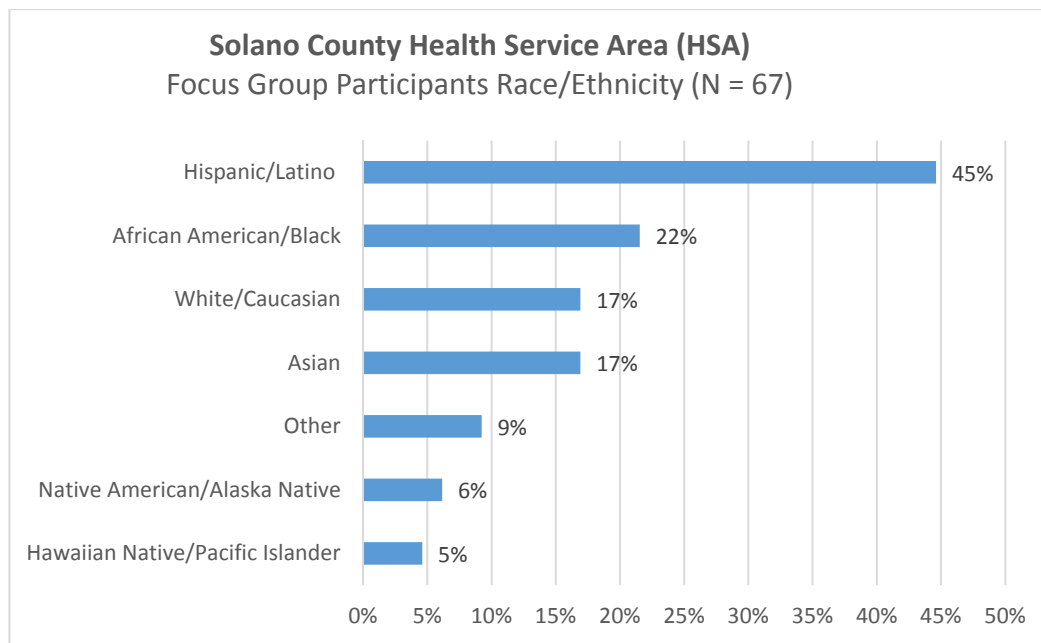
Figure 6: Focus Group Participant Demographics

Processing Primary Data

After each interview or focus group was completed, the recording and any notes were uploaded to a secure server for future analysis. A significant portion of key informant interviews and focus group recordings were sent to a transcription service, with a smaller portion transcribed by Valley Vision staff or converted into notes corresponding to the order of questions in the interview guides.

Content analyses were performed for the key informant and focus group transcripts utilizing NVivo 10 Qualitative Analytical Software. This analysis was completed in a two-phase approach. In the first phase of analysis the qualitative data were coded based on the Bay Area Regional Health Inequities Initiative (BARHII) Framework categories and other organically arising thematic areas. Further analysis was then conducted with thematic coding to the eight potential health need categories detailed later in this report and in Appendix B, with additional nodes for vulnerable populations and locations as well as resource identification.

Information Gaps/Limitations

Some data were only available at a county level, making an assessment of health needs at a neighborhood level challenging. Furthermore, disaggregated data around age, ethnicity, race, and gender are not available for all data indicators, which limited the ability to examine disparities of health within the community. Lastly, data are not always collected on a yearly basis, meaning that some data are several years old.

For primary data collection, it was a challenge to gain access to participants in communities that disproportionately experience health disparities. Measures were taken to reach out to vulnerable populations and locations through the process of Focus Community identification and the recommendations of early key informants. However, recruitment was variable and several key contacts expressed the issue of research fatigue from repeated needs assessments. Community members also frequently mentioned distrust of the research process or concerns that their input would not lead to

change in their communities. As best as possible, the research team attempted to address these concerns and to be open and transparent about the full Community Health Needs Assessment (CHNA) process. All participants were given contact information of the staff that conducted their interviews and were encouraged to reach out with any additional questions; key informants were also assured that they would receive notification once the CHNA reports become available.

Another challenge was reconciling the secondary and primary data. The quantitative data used for the identification of significant health needs was examined at the health service area (HSA) level. Alternately, a large share of the qualitative data was deliberately sourced from low-income, minority and medically underserved populations or their representatives. Owing to this discrepancy, certain health need categories were validated by either the quantitative or the qualitative data, rather than by both of these data sources.

Consultants used to help conduct the CHNA

The 2016 Community Health Needs Assessment (CHNA) was completed by Valley Vision, a regional leadership organization committed to making the Sacramento region a great place to live, work and recreate. The Solano CHNA Collaborative contracted with Valley Vision in 2016 and 2013 to conduct their CHNA. The collaborative process has built and strengthened partnerships between hospitals and other stakeholders, providing a coordinated approach to identifying priority health needs as well as developing plans to improve the health of the Sacramento region.

Valley Vision was selected to conduct the 2016 CHNA for Solano County given its history of working with the Solano CHNA Collaborative, mixed methods research skills and strong commitment to drawing attention to critical unmet health needs. Valley Vision has been a leading social enterprise and nonprofit consultancy for the Sacramento region since 1994 with the ability to deliver trusted research, design and drive multi-stakeholder initiatives and access a set of powerful leadership networks across the region. The Valley Vision team consisted of Giovanna Forno, BS, Alan Lange, MPA, Amelia Lawless, CHES, ASW, MPH, Anna Rosenbaum, MSW, MPH, Katie Strautman, MSW, Sarah Underwood, MPH and Jenny Wagner, MPH (C). The CHNA team brought a rich skill-set from years of experience working in public health, health care, social service and other public sectors.

The Valley Vision team conducted primary qualitative data collection, analyzed primary and secondary data, synthesized these data to determine the significant and prioritized health needs, documented findings, and wrote the draft and final CHNA reports. Valley Vision also contracted with Dr. Heather Diaz, Dr. Mathew C. Schmidtlein and Dr. Dale Ainsworth of Community Health Insights who assisted with project design, research methodology, data processing and GIS mapping for the CHNA. Community Health Insights is a Sacramento based research-oriented consulting firm dedicated to improving the health and wellbeing of communities across Northern California.

ASSESSMENT DATA AND FINDINGS

The main findings of this assessment are organized in accordance to the Bay Area Regional Health Inequities Initiative (BARHII) model beginning with the most downstream factors (mortality and morbidity) moving backwards to the upstream factors (risk behaviors and living conditions).

Mortality and Morbidity (Disease and Injury) in Solano County

Examination of health outcomes for the assessment included measures of illness (morbidity) and death (mortality) including communicable and non- communicable diseases, and injuries. The conditions examined included: Chronic disease, cancer, respiratory health, mental health, substance abuse, sexually transmitted infections (including HIV/AIDS), tuberculosis, and dental health, along with unintentional and self-inflicted injuries. This section begins with an examination of overall health indicators including age-adjusted all-cause mortality, infant mortality, and life expectancy at birth.

Overall Health Status – Rates of Age-adjusted All-Cause Mortality, Infant Mortality and Life Expectancy at Birth

These health status indicators provide information about the overall health status of the Solano County community. Though specific measures of mortality show how communities suffer from 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 5 examines three common overall health status indicators: age-adjusted all-cause mortality, infant mortality, and life expectancy at birth for each of the Solano County ZIP codes. Throughout the entire report: Values in blue are those that fall above or below the desired direction in comparison to county, state or national benchmarks; tables that contain a "0" indicate that the rate for that ZIP code was zero or that data was not provided by OSHPD due to small cell counts (less than 5). Additionally, tables with a "N/A" notation indicate that data were missing or unavailable for that ZIP code.

Table 5: Overall health status indicators: Age-adjusted all-cause mortality, infant mortality, and life expectancy at birth

	ZIP Code	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	94510	68.35	4.47	80.68
	94512	0.00	0.00	N/A
	94533*	78.86	5.10	77.45
	94534	63.71	4.62	81.04
	94535	0.00	4.72	N/A
	94571*	59.57	0.00	81.07
	94585	68.88	5.06	81.60
	94589*	68.98	4.75	78.98
	94590*	76.05	4.61	77.29
	94591*	63.68	5.19	79.87
	94592	0.00	0.00	N/A
	95690	62.40	0.00	79.04
	95694	64.27	4.55	80.54
	95618	54.23	4.49	83.59
	95620	54.32	4.20	82.88
	95625	0.00	0.00	N/A
	95687	80.93	4.65	78.16
	95688*	64.61	4.67	79.90
	Solano County	70.83	5.50	79.11
	CA State	64.60	4.90	80.50
	National 2013	N/A	N/A	78.80[2]
	Healthy People 2020 Target	N/A	6.00[3]	N/A

Source: CDPH, 2010-2012
Indicates Focus Community

Seven Solano ZIP codes had age-adjusted all-cause mortality rates that were above the state benchmark, while three of the ZIP codes were above both the county and state benchmarks. Age-adjusted overall mortality was highest in ZIP code 95687 (East Vacaville). Three of the 18 ZIP codes in Solano County had high rates of infant mortality above the state benchmark at 4.90 deaths per 1,000 live births. Seven of the 18 ZIP codes also had lower life expectancy relative to the state. The community with the lowest life expectancy was seen in ZIP code 94590 (South/Central Vallejo), also a Focus Community, at 77.29 years of age.

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[2] 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

[3] 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

Chronic Diseases -- Diabetes, Heart Disease, Stroke, Hypertension and Kidney Disease

Both primary and secondary data indicated that most chronic illnesses are common in the Solano County health service area (HSA). Key informant interviews and community members specifically stated challenges with heart disease, diabetes and hypertension in their communities.

Diabetes

Diabetes was the seventh leading cause of death nationally in 2013[4]. Diabetes was mentioned in more than half of the key informant and focus group interviews as a health issue for community residents. Interviewees often mentioned diabetes in both adults and youth as a significant health need for Solano County and discussed possible causes, such as low access to healthy, affordable food options and health education, including understanding how to manage the disease. Additionally, quantitative findings showed clear geographic health disparities across the Solano County HSA. Table 6 displays rates of mortality, emergency departments (ED) visits, and hospitalizations (H) due to diabetes for each ZIP code in Solano County.

Rates -- Mortality, ED visits and Hospitalizations due to diabetes

Table 6: 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	Age-Adjusted ED Visits	Age-Adjusted Hospitalizations
Diabetes	94510	2.26	199.41	117.45
	94512	0.00	87.06	133.75
	94533*	2.61	423.03	255.59
	94534	2.03	199.96	135.41
	94535	0.00	84.13	97.65
	94571*	2.84	199.70	167.82
	94585	1.84	310.40	212.19
	94589*	3.01	545.31	260.74
	94590*	2.76	663.37	281.21
	94591*	2.19	367.11	182.60
	94592	0.00	195.95	124.54
	95690	0.00	167.35	175.72
	95694	0.00	253.32	144.25
	95618	1.51	118.82	76.11
	95620	2.19	267.22	151.58
	95625	0.00	221.28	143.26
	95687	2.03	267.57	168.15
	95688*	1.84	268.21	217.14
	Solano County	2.56	342.51	194.13
	CA State	2.11	209.15	192.30
	Healthy People 2020 Target	6.60	N/A	N/A

Sources: Mortality: CDPH, 2012; ED visits and hospitalizations: OSHPD, 2011-2013
Indicates Focus Community

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

Seven of the 18 ZIP codes had mortality rates due to diabetes that were above the state benchmark but below the Health People 2020 benchmark set at 6.60 deaths per 10,000 population. The county rate for ED visits due to diabetes was clearly above the state benchmark. The highest mortality rate due to diabetes was found in 94589 (North Vallejo) at 3.01 deaths per 10,000. Ten of the 18 ZIP codes had ED visit rates due to diabetes that were clearly above the state benchmark. The ZIP codes with the highest rates were 94590 (South/Central Vallejo), 94589 (North Vallejo) and 94533 (East Fairfield). All three ZIP codes were also identified as Focus Communities for Solano County. ZIP code 94590 (South/Central Vallejo) had the highest rate for both ED visits and hospitalizations due to diabetes. Figure 7 (below) displays ED visits and hospitalizations due to diabetes by race and ethnicity.

ED/H Diabetes Rates by Race/Ethnicity
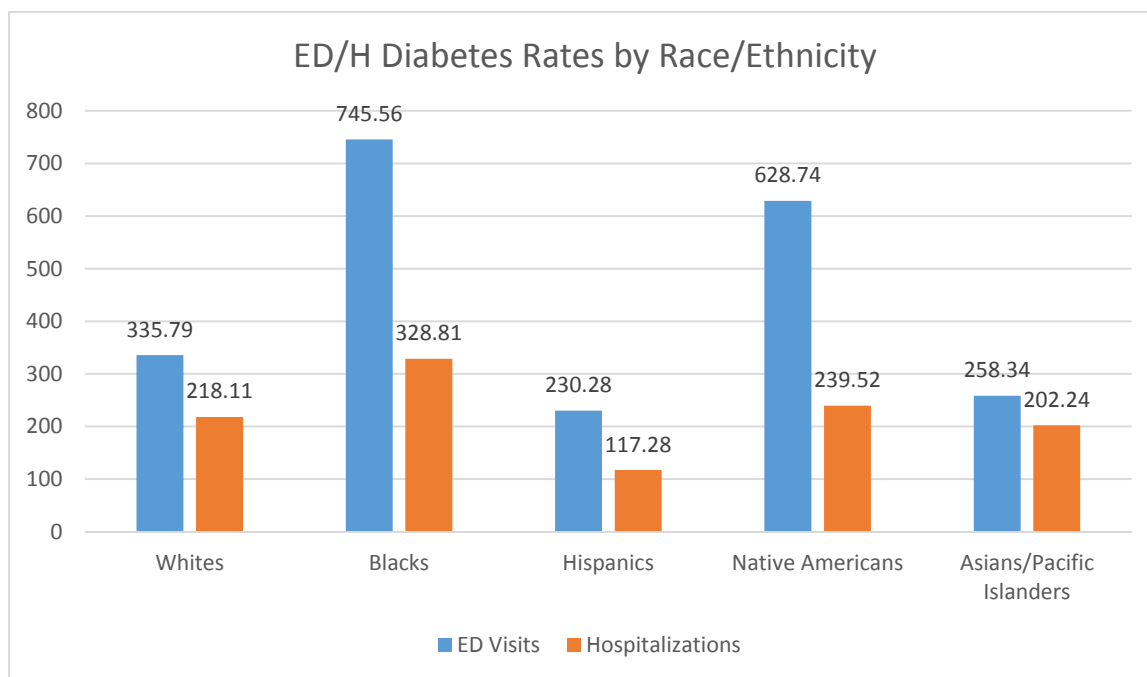
Figure 7: ED visits/hospitalizations due to diabetes by race/ethnicity
Source: OSHPD, 2011-2013

Data by race and ethnicity in Solano County for ED visits due to diabetes indicated vast disparities between Black and Hispanic populations (745.56 per 10,000; 230.28 per 10,000). The Native American population had the second highest rate of ED visits due to diabetes at 628.74 per 10,000, almost three times the rate of the Hispanic population (230.28 per 10,000). Similarly, the Black population had the highest rate of hospitalizations due to diabetes at 328.81 per 10,000 population.

Percent -- Adults over 20-year-old with diabetes

Reported by the National Center for Chronic Disease Prevention and Health Promotion (2012), the percent of adults over the age of 20 that had ever been told by a doctor that they have diabetes was 9.5% for Solano County, above the state benchmark at 8.0%.

Percent -- Medicare patients with diabetes that received a hA1c exam

Preventive screening for diabetes is important. Lack of screening and follow up care for diabetes was mentioned in the primary data as a big concern for area residents. According to the Dartmouth College Institute for Health Policy & Clinical Practice (2012), the percent of Medicare patients with diabetes

which report having had a hA1c exam to monitor their diabetes diagnosis was 72.7% in Solano County, below the state benchmark at 81.5%.

Heart Disease

Heart disease is the leading cause of death in the nation for individuals under the age of 85, and includes a number of different types of heart-related conditions, with coronary heart disease being the most common and a major cause of heart attacks. Nationwide, more than 600,000 people die of heart disease each year. [5] Table 7 examines rates for mortality, ED visits, and hospitalizations due to heart disease.

Rates -- Mortality, ED visits and hospitalizations due to heart disease

Table 7: 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	Age-adjusted ED Visits	Age-adjusted Hospitalizations
Heart Disease	94510	11.23	207.57	191.89
	94512	0.00	45.19	168.51
	94533*	16.32	252.45	275.53
	94534	11.25	174.35	194.85
	94535	0.00	33.62	47.82
	94571*	28.88	152.06	204.53
	94585	9.06	210.97	235.47
	94589*	15.14	327.93	266.45
	94590*	19.90	403.83	319.57
	94591*	14.29	270.13	219.46
	94592	0.00	135.48	131.94
	95690	19.07	156.49	254.42
	95694	12.43	198.82	163.49
	95618	7.50	97.42	113.50
	95620	10.13	165.15	164.89
	95625	0.00	125.12	147.26
	95687	11.78	244.38	228.83
	95688*	9.62	239.47	280.72
	Solano County	13.23	246.40	234.79
	CA State	15.82	112.64	222.00
	Healthy People 2020 Target	10.10	N/A	N/A

Sources: Mortality: CDPH, 2012; ED visits and hospitalizations: OSHPD, 2011-2013
Indicates Focus Community

Examination of mortality due to heart disease revealed that 61% of ZIP codes had rates higher than the Healthy People 2020 benchmark. The highest rates were found in ZIP codes 94533 (East Fairfield), 94571 (Rio Vista), 94590 (South/Central Vallejo) and 95690 (Walnut Grove), the highest being 94571 at a rate of 28.88 deaths per 10,000 population, drastically higher than the county rate at 13.23 deaths per 10,000. Fifteen of the 18 ZIP codes in Solano County had rates of ED visits for heart disease above the

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

state benchmark, while four ZIP codes had rates above the county and state benchmarks. Most notable was ZIP code 94590 (South/Central Vallejo) with an ED visit rate of 403.83 per 10,000 and a hospitalization rate of 319.57 per 10,000, both clearly above the county and state benchmarks.

Data showed vast disparities between racial and ethnic groups in Solano County. ED visits due to heart disease indicated that Whites had a rate of 333.75 per 10,000 population, compared to Hispanics at 86.06, Native Americans at 414.17, Asians/Pacific Islanders at 149.28, and Blacks at 429.34 per 10,000 population. Data by race and ethnicity for hospitalizations due to heart disease showed that Whites had a rate of 326.25 per 10,000, compared to Hispanics at 93.26, Native Americans at 266.97, Asian/Pacific Islander at 192.44, and Blacks at 335.93 per 10,000 population.

Percent -- Adults over 18 years old with heart disease
The California Health Interview Survey indicated that for 2011-2012, the percent of adults over the age of 18 that had ever been told by a doctor that they have heart disease was 7.8% for the Solano County area, higher than the state benchmark at 6.3%.

Stroke, Hypertension and Kidney Disease
The fifth leading cause of death nationally is stroke.[6] Approximately 800,000 people have a stroke each year, with the most common type being those which restrict blood flow to the brain.[7] Tobacco smoking and hypertension drastically increase risk for stroke. Hypertension is common in approximately 1 out of every 3 adults.[8] Stroke, hypertension, and kidney disease are discussed together here. Hypertension also increases risk for kidney diseases, along with heart disease and diabetes. Tables 8, 9, and 10 examine mortality, ED visits, and hospitalizations related to stroke, hypertension, and kidney disease.

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[6] Centers for Disease Control and Prevention. (2015). *Leading Causes of Death*. Retrieved from: http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm
[7] Centers for Disease Control and Prevention. (2015). *Stroke Facts*. Retrieved from: http://www.cdc.gov/stroke/facts.htm
[8] Centers for Disease Control and Prevention. (2015). *Blood Pressure Facts*. Retrieved from: http://www.cdc.gov/bloodpressure/facts.htm

Rates -- Mortality, ED visits and hospitalizations due to stroke

Table 8: 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	Age-Adjusted ED Visits	Age-Adjusted Hospitalizations
Stroke	94510	3.87	42.01	48.57
	94512	0.00	4.63	17.94
	94533*	3.60	47.82	71.87
	94534	3.22	37.10	45.62
	94535	0.00	0.00	0.64
	94571*	4.48	24.91	38.16
	94585	3.28	37.88	59.80
	94589*	5.01	65.06	74.51
	94590*	3.67	72.39	78.32
	94591*	4.03	55.59	61.50
	94592	0.00	17.05	33.50
	95690	4.80	17.85	46.42
	95694	3.77	27.55	41.54
	95618	2.31	20.80	29.76
	95620	4.28	30.07	47.63
	95625	0.00	9.70	29.80
	95687	2.79	44.84	51.60
	95688*	3.71	44.06	64.77
	Solano County	3.67	48.71	59.30
	CA State	3.60	18.55	52.23
	Healthy People 2020 Target	3.40	N/A	N/A

Sources: Mortality: CDPH, 2012; ED visits and hospitalizations: OSHPD, 2011-2013
Indicates Focus Community

Mortality rates due to stroke were high in ten of the 18 ZIP codes with the highest rate seen in ZIP code 94589 (North Vallejo) at 5.01 deaths per 10,000 population. ED visits due to stroke were also clearly above the state benchmark in 13 of the 18 ZIP codes. The highest rate was in 94590 (South/Central Vallejo), also a Focus Community, at 72.39 ED visits per 10,000 population, more than three times the state benchmark of 18.55 per 10,000. ZIP code 94590 also had the highest rate of hospitalizations for stroke compared to the county and state benchmark, at 78.32 hospitalizations per 10,000 population.

Data by race and ethnicity for ED visits due to stroke showed that Whites had a rate of 61.91 per 10,000, compared to Hispanics at 19.23, Native Americans at 49.90, Asians/Pacific Islanders at 34.18, and Blacks at 87.74 per 10,000 population, nearly double the county benchmark. Data by race and ethnicity for hospitalizations due to stroke showed that Whites had a rate of 74.49 per 10,000, compared to Hispanics at 22.34, Native Americans at 54.89, Asians/Pacific Islanders at 59.17, and Blacks at 96.89 per 10,000 population, above the state and county benchmarks.

Rates -- Mortality, ED visits and hospitalizations due to hypertension

Table 9: 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	94510	1.04	518.58	307.93
	94512	0.00	177.29	197.70
	94533*	1.11	812.33	463.84
	94534	1.28	471.13	304.45
	94535	0.00	178.31	160.26
	94571*	1.38	474.27	342.28
	94585	1.52	674.70	398.74
	94589*	0.86	1088.87	449.31
	94590*	0.00	1326.25	515.34
	94591*	1.55	791.77	350.85
	94592	0.00	553.06	343.74
	95690	0.00	427.52	406.43
	95694	0.00	515.71	264.10
	95618	1.18	299.42	181.52
	95620	0.99	513.23	274.60
	95625	0.00	518.11	380.86
	95687	1.21	587.33	358.80
	95688*	1.07	631.85	486.77
	Solano County	N/A**	724.05	385.16
	CA State	1.21	408.99	383.74

Sources: Mortality: CDPH, 2012; ED visits and hospitalizations: OSHPD, 2011-2013
Indicates Focus Community
**CDPH data on mortality due to Hypertension for the County was not available*

Mortality rates due to hypertension were above the state benchmark in four of the 18 ZIP codes in Solano County. Examination of ED visits due to hypertension showed 83% of ZIP codes with rates clearly higher than the state benchmark. Specifically, ZIP code 94590 (South/Central Vallejo), also a Focus Community in Solano County, had a rate of 1326.25 ED visits per 10,000 population, nearly twice the county rate and three times the state rate. The rate for hospitalizations due to hypertension was also highest in ZIP code 94590 (South/Central Vallejo) at 515.34 hospitalizations per 10,000 population, far above the county and state benchmarks.

Data by race and ethnicity for ED visits due to hypertension showed that Whites had a rate of 811.12 per 10,000, compared to Hispanics at 333.76, Native Americans at 978.04, Asians/Pacific Islanders at 487.98, and Blacks at 1609.08 per 10,000 population, more than twice the county rate and almost four times the state rate. Data by race and ethnicity for hospitalizations due to hypertension showed that Whites had a rate of 503.90 hospitalizations per 10,000 population, compared to Hispanics at 174.74, Native Americans at 439.12, Asian/Pacific Islander at 325.07, and Blacks at 609.29, per 10,000 population.

Primary data of key informant and focus group interviews showed the participants specifically mentioning high blood pressure as a challenging issue for area residents, especially in relation to stress. As one community member stated, "*high blood pressure is common because of stress" (FG_2).*

Percent -- Adults with hypertension not taking medication

The Centers for Disease Control and Prevention Behavioral Risk Factor Surveillance System survey results for 2006-2010 indicated that the percentage of adults self-reporting high blood pressure for which they do not take medication was 28.0% for Solano County, below the state percent of 30.0%.

Rates -- Mortality, ED visits and hospitalizations due to kidney disease

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

	ZIP Code	Mortality	Age-Adjusted ED Visits+	Age-Adjusted Hospitalizations+
Kidney Disease	94510	0.00	115.61	138.21
	94512	0.00	12.36	26.29
	94533*	0.96	159.57	232.85
	94534	0.56	111.49	149.57
	94535	0.00	0.05	28.91
	94571*	0.78	90.06	145.87
	94585	0.92	140.49	203.27
	94589*	1.21	238.16	238.98
	94590*	0.97	267.99	267.13
	94591*	0.82	165.79	178.43
	94592	0.00	96.19	171.54
	95690	0.00	59.13	155.59
	95694	0.00	109.88	120.33
	95618	0.73	46.17	86.45
	95620	0.90	90.74	121.10
	95625	0.00	41.61	104.99
	95687	0.74	156.09	183.22
	95688*	0.87	135.32	226.47
	Solano County	N/A	156.84	190.83
	CA State	0.73	57.09	160.01

Sources: Mortality: CDPH, 2012; ED visits and hospitalizations: OSHPD, 2011-2013
+OSHPD data includes data for nephritis, nephrotic syndrome, and nephrosis
Indicates Focus Community

Mortality rates due to kidney disease were elevated in nine of the 18 ZIP codes with the highest rate in 94589 (North Vallejo), also a Focus Community for Solano County. The county rate for ED visits due to kidney disease was nearly three times higher than the state benchmark. Fourteen ZIP codes in Solano County had rates of ED visits above the state benchmark, and four ZIP codes exceeded both county and state benchmarks. The highest rates of ED visits due to kidney disease were in ZIP codes 94589 (North Vallejo) and 94590 (South/Central Vallejo), also Focus Communities for Solano County. Hospitalizations due to kidney disease were higher than the state rate in eight of the 18 ZIP Codes in Solano County. The highest rates for hospitalizations were in the same two ZIP codes, 94589 (North Vallejo) and 94590 (South/Central Vallejo).

Data by race and ethnicity found that the rate of ED visits due to kidney disease for Whites was 174.12 per 10,000 population, compared to Hispanics at 63.25, Native Americans at 217.07, Asians/Pacific Islanders at 124.19, and Blacks at 334.60 per 10,000 population, above the county and state

benchmarks. Data by race and ethnicity found that the rate of hospitalizations due to kidney disease for Whites was 232.06 hospitalizations per 10,000 population, compared to Hispanics at 86.73, Native Americans at 252.00, Asians/Pacific Islanders at 173.49, and Blacks at 335.06 per 10,000 population.

Cancer -- Incidence, ED visit, Hospitalization, Mortality and Screening Rates by Specific Cause of Cancer
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[9]. In an attempt to gain a better understanding of how Solano County is affected by cancer, the assessment included the examination of cancer incidence for female breast, colorectal, lung and prostate cancers at the ZIP code level. All-cause cancer mortality and ED visits and hospitalizations for specific causes of cancer are also examined by ZIP code and included lung cancer, colorectal cancer, prostate cancer, and female breast cancer. These specific cancers were chosen for this assessment because they are among the leading causes of new cases and/or of deaths related to cancer among Americans today. Screening rates for breast cancer, cervical cancer and colorectal cancer were also examined at the HSA level.

Rates -- Breast (female), colorectal, lung, and prostate cancer incidence
Cancer incidence communicates risk for cancer within the Solano County communities. Table 11 shows incidence rates for female breast, colorectal, lung and prostate cancers for each of the ZIP codes in Solano County. Rates for each ZIP code are compared to the state benchmark as well as the Solano County HSA rate, which is an aggregate of all 18 ZIP codes within the HSA.

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

Table 11: Cancer incidence (new cases) for female breast cancer, colorectal cancer, lung cancer and prostate cancer (rates per 10,000 population)

	ZIP Code	Breast-Female	Colorectal	Lung	Prostate
Cancer Incidence	94510	25.49	2.92	6.51	19.77
	94512	N/A	N/A	N/A	N/A
	94533*	16.80	4.19	5.01	12.24
	94534	20.65	4.12	3.98	16.63
	94535	N/A	N/A	N/A	N/A
	94571*	30.00	5.47	8.02	24.93
	94585	12.92	3.13	3.87	12.89
	94589*	18.23	4.40	6.85	14.51
	94590*	19.93	5.01	7.00	16.79
	94591*	18.35	4.37	6.22	18.75
	94592	N/A	N/A	N/A	N/A
	95690	21.73	N/A	N/A	15.68
	95694	11.07	3.76	N/A	13.14
	95618	16.44	2.78	2.11	9.52
	95620	16.15	3.77	5.49	11.36
	95625	N/A	N/A	N/A	N/A
	95687	20.61	3.72	6.23	9.96
	95688*	18.37	4.14	5.85	25.00
	Solano County HSA	18.75	4.01	5.45	14.89
	CA State	13.16	3.88	4.54	11.61

Source: California Cancer Registry, 2010-2012
*Indicates Focus Community

The breast cancer incidence rate for Solano County was clearly above the state benchmark of 13.16 new cases per 10,000 population. Twelve ZIP codes within the HSA exceeded the state benchmark, six of which also exceeded the HSA rate: 94510 (Benicia), 94534 (West Vacaville), 94571, (Rio Vista), 94590 (South/Central Vallejo), 95690 (Walnut Grove) and 95687 (East Vacaville). Colorectal cancer incidence rates exceeded the state and HSA rates in seven of the 18 ZIP codes, with 94571 (Rio Vista) having the highest rate at 5.47 new cases per 10,000 population. Nine of the 18 ZIP codes had rates of lung cancer incidence that were above the state benchmark, with the highest rate seen in ZIP code 94571 (Rio Vista) at 8.02 new cases per 10,000 population. Eleven of the 18 ZIP codes had incidence rates for prostate cancer above the state benchmark, with the highest rates in the following two ZIP codes: 94571 (Rio Vista) and 95688 (West Vacaville). Most notable were ZIP codes 94571 (Rio Vista) and 94590 (South/Central Vallejo), both Focus Communities, which had elevated incidence rates for all four cancer types.

Rates -- All-cause cancer mortality and lung cancer ED visits and hospitalizations
An all-cause cancer mortality rate shows the overall effect of cancer as an illness in Solano County. Unfortunately, mortality data for specific cancers are 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 12, followed by rates for colorectal, prostate and female breast cancer in Table 13.

Table 12: 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
94510	17.59	6.99	10.02
94512	0.00	3.49	9.97
94533*	16.84	6.19	8.44
94534	15.51	5.92	7.43
94535	0.00	2.74	3.71
94571*	31.62	6.59	11.80
94585	13.15	2.75	8.58
94589*	17.86	7.93	11.52
94590*	18.17	10.12	15.74
94591*	17.06	10.65	11.96
94592	0.00	4.08	8.70
95690	15.18	2.93	12.16
95694	16.70	3.25	4.79
95618	12.64	0.51	2.58
95620	12.74	4.00	7.18
95625	0.00	0.00	0.00
95687	23.29	5.02	8.12
95688*	17.42	4.14	12.24
Solano County	18.18	6.80	10.06
CA State	15.41	2.68	7.95
Healthy People 2020	16.10	N/A	N/A

Source: Mortality: CDPH, 2012; ED visits: OSHPD, 2011-2013
Indicates Focus Community

Ten of the 18 ZIP codes exceeded the state benchmark for mortality due to all-cause cancer. Nine of these ten ZIP codes also exceeded the Healthy People 2020 benchmark set at 16.10 deaths per 10,000 population, with the highest rate in ZIP code 94571 (Rio Vista) at 31.62 deaths per 10,000 population. The county benchmark for ED visits due to lung cancer was more than two times the state rate of 2.68 ED visits per 10,000 population. Eighty-nine percent of the ZIP codes had rates of ED visits due to lung cancer that were higher than the state benchmark, with the highest rate in ZIP code 94591 (East Vallejo). Twelve of the 18 ZIP codes had lung cancer-related hospitalization rates above the state benchmark, seven of which also exceeded the county benchmark. The highest rate of hospitalizations due to lung cancer was in ZIP code 94590 (South/Central Vallejo) at 15.74 hospitalizations per 10,000 population, nearly double the state benchmark.

Data by race and ethnicity for ED visits due to lung cancer showed that Whites had a rate of 9.83 ED visits per 10,000 population, compared to Hispanics at 1.47, Native Americans at 2.50, Asians/Pacific Islanders at 5.58, and Blacks at 9.84 per 10,000 population, above the county and state benchmarks. Data by race and ethnicity for hospitalizations due to lung cancer found that Whites had a rate of 15.81 hospitalizations per 10,000 population, compared to Hispanics at 1.68, Native Americans at 17.47, Asians/Pacific Islanders at 8.97 and Blacks at 11.23 per 10,000 population. The rate of ED visits due to

lung cancer in the Native American population was over two and a half times the county rate and over six and a half times the state rate.

Rates -- Female breast, colorectal, prostate cancer ED visit and hospitalizations

A lack of access to primary health care greatly effects the risk for late diagnosis of cancer. It is especially crucial for those cancers for which early diagnosis and prevention are important in order to reduce further related morbidity and mortality. Table 13 examines ED visit and hospitalizations related to female breast cancer, colorectal cancer (male and female) and prostate cancer.

Table 13: Rates of ED visits and hospitalizations for female breast cancer, colorectal cancer, and prostate cancer (rates per 10,000 population)

ZIP Code	ED visits Female Breast Cancer	Hospitalization Female Breast Cancer	ED visits Colorectal Cancer	Hospitalization Colorectal Cancer	ED visits Prostate Cancer	Hospitalization Prostate Cancer
94510	15.19	11.02	2.56	4.87	13.22	14.18
94512	0.00	11.46	0.00	0.00	8.51	0.00
94533*	14.76	9.33	3.38	6.36	12.32	11.73
94534	16.24	11.08	1.85	5.89	13.53	14.27
94535	0.00	0.00	0.00	2.79	0.00	0.00
94571*	9.99	16.70	3.05	9.04	22.83	22.96
94585	9.99	9.14	2.82	4.81	6.23	7.51
94589*	11.84	12.37	4.21	7.09	17.27	9.98
94590*	38.28	21.24	7.63	8.12	21.93	12.78
94591*	16.49	10.06	3.56	7.62	17.88	14.37
94592	7.15	0.00	0.00	0.00	0.00	0.00
95690	6.42	12.28	3.19	5.92	4.78	18.35
95694	4.11	9.37	3.77	6.98	12.21	7.60
95618	6.78	7.35	0.94	3.12	4.04	7.68
95620	14.16	10.47	2.05	5.36	7.00	9.97
95625	0.00	0.00	2.40	13.82	0.00	0.00
95687	15.13	10.66	3.57	6.16	11.18	8.88
95688*	13.67	11.12	3.02	10.51	11.03	21.01
Solano County	17.09	11.51	3.69	6.79	13.68	12.24
CA State	6.59	11.07	1.85	6.43	5.79	12.37

Source: OSHPD, 2011-2013
*Indicates Focus Community

Examination of ED visits related to breast cancer in females revealed that 13 ZIP codes had rates above the state benchmark. Seven ZIP codes exceeded the state benchmark for hospitalizations related to breast cancer among females. The highest rates of ED visits and hospitalizations due to breast cancer were found in ZIP code 94590 (South/Central Vallejo) at 38.28 ED visits and 21.24 hospitalizations per 10,000 female population, drastically higher than the respective county and state benchmarks. Rates of ED visits related to colorectal cancer showed that thirteen ZIP codes had rates above the state benchmark and three ZIP codes had rates above the county and state benchmarks. Hospitalization data for colorectal cancer showed seven of the 18 ZIP codes in Solano County having higher rates than both

the county and state benchmark rates, with ZIP code 95625 (Elmira) at 13.82 hospitalization visits per 10,000 population. ED visit rates for prostate cancer were higher than the state rate in thirteen ZIP codes, with the highest rates in ZIP code 94571 (Rio Vista) at 22.83 ED visits per 10,000 population. ZIP codes 94571 (Rio Vista), 94590 (South/Central Vallejo) and 95688 (West Vacaville) had elevated rates for ED and hospitalizations for all three cancer types.

Table 14: Race/ethnic disparities of ED visits and hospitalizations for breast cancer, colorectal and prostate cancer (rates per 10,000 populations)

Race/Ethnicity	Breast Cancer		Colorectal Cancer		Prostate Cancer	
	ED Visits	Hospitalizations	ED Visits	Hospitalizations	ED Visits	Hospitalizations
White	10.80	7.40	4.44	8.67	8.47	8.65
Black	19.04	9.96	8.10	8.62	15.80	9.84
Hispanic	2.58	2.41	1.07	2.58	1.94	1.71
Native American	12.48	4.99	0.00	9.98	2.50	4.99
Asian/Pacific Islander	4.59	4.85	1.46	7.20	3.44	4.49
Solano County	17.09	11.51	3.69	6.79	13.68	12.24
CA State	6.59	11.07	1.85	6.43	5.79	12.37

Source: OSHPD, 2011-2013

Data by race and ethnicity indicated that breast cancer ED visits were highest among the Black population at 19.04 per 10,000, above the Solano County and state benchmarks. Hospitalizations for breast cancer were also highest among the Black population at 9.96 per 10,000, although all race and ethnic group rates were below the county and state benchmarks. ED visits for colorectal cancer were highest among the Black population at 8.10 per 10,000, while hospitalizations due to colorectal cancer were highest among the Native American population at 9.98 per 10,000 population. ED visits for prostate cancer were highest in the Black population at 15.80 per 10,000, above both the county and state benchmarks and over eight times the rate of the Hispanic/Latino population at 1.94 per 10,000. Hospitalizations due to prostate cancer were also elevated in the Black population at 9.84 per 10,000, however all race and ethnic group rates were below the county and state benchmarks.

Primary data participants mentioned cancer as a concern in many communities, especially concerns with risk factors that result in a number of cancers, as well as other diseases. As one key informant said:

> *I would say that, if we address the risk factors of physical activity, quality of nutrition, and smoking, that the results of those are diabetes, heart disease, and a number of cancers…so if you ask me what is most important from the stand point of burden impact on the county, I would say those. It's heart disease, preventable cancers and diabetes. (KI_1)*

Data on the percent of Medicare enrollees aged 67-69 years old or older reports the percent receiving a mammogram within the last two years was lower for Solano County than the state benchmark (Figure 8). The percent of female adults over the age of 18 that reported having had a pap test in the last three years for Solano County was higher than the state percent at 78%. Additionally, more 50-year-olds (64%) in Solano County report having had a sigmoidoscopy or colonoscopy at least once in comparison to the state (58%).
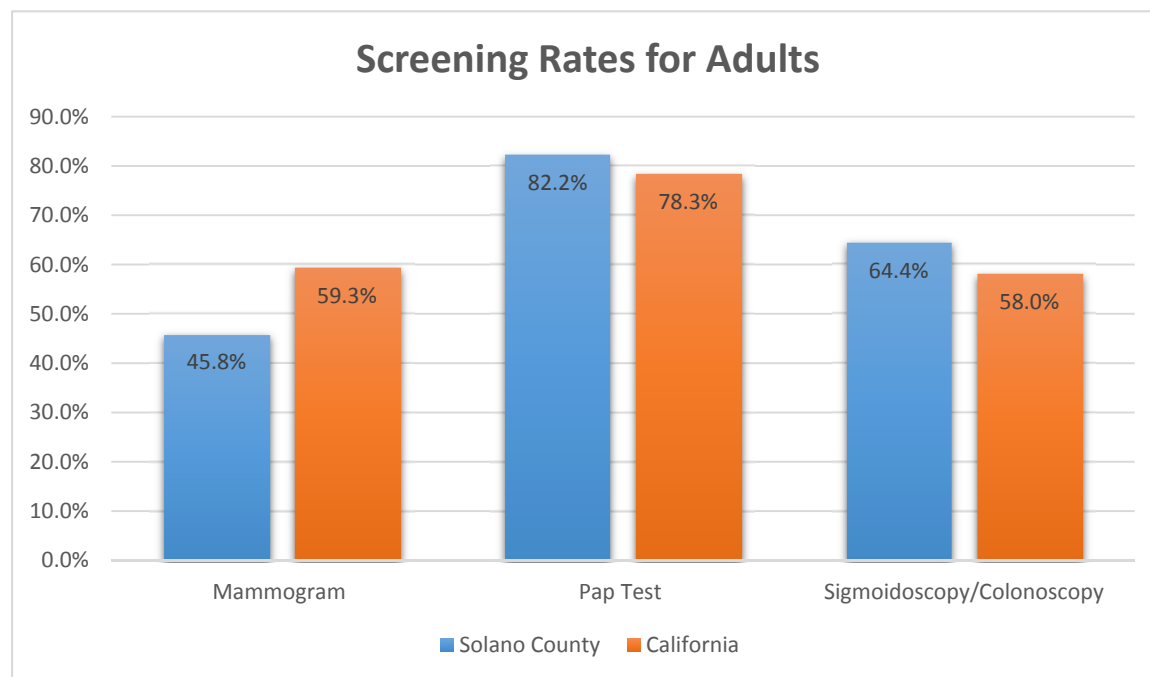
Figure 8: Screening rates in adults for mammograms, pap test and sigmoidoscopy/colonoscopy
Sources: Dartmouth College Institute for Health Policy & Clinical Practice, 2012; CDC, 2006 – 2012

Respiratory Health – Chronic Obstructive Pulmonary Disease (COPD), Asthma, and Tuberculosis

COPD is a progressive lung disease that makes it very hard to breathe and refers to the two main conditions of emphysema and chronic bronchitis.[10] Tobacco smoking is the biggest risk factor for COPD. As many as 6.8 million people have COPD at the national level. Tuberculosis (TB) is a respiratory condition caused by a bacterium called Mycobacterium tuberculosis. In 2014 there were 2.96 cases of TB per 100,000 population in the United States.[11] In an effort to understand the impact of respiratory illness in Solano County, mortality rates for chronic lower respiratory disease (CLRD) are presented in Table 15 along with rates of ED visits and hospitalizations related to COPD. Rates of ED visits and hospitalizations due specifically to asthma are examined independently in Table 16.

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[10] National Heart, Lung and Blood Institute. (2013). *What is COPD?* Retrieved from: http://www.nhlbi.nih.gov/health/health-topics/topics/copd
[11] Centers for Disease Control and Prevention. (2014). Tuberculosis. Retrieved from: http://www.cdc.gov/tb/statistics/default.htm

Rates -- Mortality, ED visits and hospitalizations due to Chronic Obstructive Pulmonary Disease (COPD)

Table 15: Mortality rates due to chronic lower respiratory disease, ED visits and hospitalization rates due to COPD compared to county, state, and Healthy People 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)	94510	3.62	289.57	146.58
	94512	0.00	113.66	84.38
	94533*	4.24	447.79	205.95
	94534	3.79	240.54	133.48
	94535	0.00	20.15	27.09
	94571*	4.22	385.00	313.14
	94585	2.39	326.38	148.78
	94589*	5.99	529.97	221.34
	94590*	4.11	700.55	261.52
	94591*	3.57	404.94	170.00
	94592	0.00	319.18	115.33
	95690	0.00	217.27	230.07
	95694	2.18	181.55	122.18
	95618	2.00	99.05	70.40
	95620	2.39	229.01	126.76
	95625	0.00	989.82	326.84
	95687	4.84	319.39	166.11
	95688*	4.17	341.39	232.43
	Solano County	4.18	384.51	183.83
	CA State	3.46	218.3	154.44
	Healthy People 2020	N/A	56.80	50.10

Source: Mortality: CDPH, 2012; ED visits: OSHPD, 2011-2013
Indicates Focus Community

Nine of the 18 ZIP codes for Solano County had mortality rates due to CLRD above the state benchmark. Thirteen of the 18 ZIP codes had high rates of ED visits due to COPD above the state benchmark with the highest rate in 95625 (Elmira) at 989.82 ED visits per 10,000 population, more than four times the state and 17 times the Healthy People 2020 benchmark. Data by race and ethnicity showed that Whites had a rate of 425.77 per 10,000, compared to Native Americans at 508.98, Hispanics at 222.91, Asian/Pacific Islander at 186.07, and Blacks at 806.83 per 10,000 population.

Similar to ED visits, ZIP code 95625 (Elmira) showed elevated rates for hospitalizations due to COPD at 326.84 hospitalizations per 10,000 population, over six times above the Healthy People 2020 benchmark. Data by race/ethnicity showed that Whites had a rate of 254.95 per 10,000, compared to Hispanics at 78.09, Native Americans at 242.02, Asian/Pacific Islander at 119.18, and Blacks at 266.01 per 10,000 population, over three and a half times more than the Hispanic population.

Rates -- ED visits and hospitalizations due to Asthma

Asthma is one of the leading health issues in the US. National data indicate that one in 12 adults and one in 11 children have asthma.[12] Table 16 examines ED visits and hospitalizations due to asthma (all ages) in Solano County.

Table 16: 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	94510	202.13	81.08
	94512	83.01	0.00
	94533*	333.64	116.90
	94534	184.17	81.52
	94535	13.35	21.67
	94571*	256.24	137.64
	94585	255.00	93.89
	94589*	375.27	120.07
	94590*	470.83	131.67
	94591*	291.99	100.54
	94592	238.09	84.74
	95690	110.42	98.91
	95694	119.94	72.84
	95618	57.13	43.60
	95620	160.19	79.35
	95625	841.33	176.76
	95687	221.48	88.85
	95688*	254.32	120.87
	Solano County	276.21	102.22
	CA State	148.86	70.55

Source: OSHPD, 2011-2013
Indicates Focus Community

Seventy-two percent of ZIP codes for Solano County had ED visit rates due to asthma that fell above the state benchmark with twenty-eight percent of ZIP codes above both the county and state benchmarks. The highest rates of ED visits were found in ZIP codes 94533 (East Fairfield), 94589 (North Vallejo), 94590 (South/Central Vallejo) and 95625 (Elmira), with ZIP code 95625 having the highest rate of ED visits for asthma at 841.33 per 10,000 population, over five times the state benchmark and three times the county benchmark. Data by race and ethnicity showed that Whites had a rate of 271.33 ED visits per 10,000 population, compared to Hispanics at 181.40, Native Americans at 419.16, Asians/Pacific Islanders at 147.98, and Blacks at 624.97 per 10,000 population. Moreover, the rate of ED visits due to asthma in the Black population was over two times the county rate and four times the state rate.

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

Eighty-three percent of the ZIP codes in Solano County had elevated rates of hospitalizations due to asthma compared to the state benchmark, with the highest rate also in 95625 (Elmira) at 176.76 hospitalizations due to asthma per 10,000 population. Data by race and ethnicity showed that Whites had a rate of 122.99 per 10,000, compared Hispanics at 56.68, Native Americans at 127.25, Asian/Pacific Islanders at 77.54, and to Blacks at 166.28 per 10,000 population.

Percent -- Adults over age 18 with asthma

As reported by the Centers for Disease Control and Prevention from the Behavioral Risk Factor Surveillance System survey, the percent of adults over the age of 18 that had ever been told by a doctor that they have asthma was 30.8% for Solano County, more than twice the state percent of 14.2% in 2011-2012.

Key informants and community members mentioned asthma as a major issue for both youth and adult residents. Managing asthma in both schools and in the built environment was mentioned as a big area of need. As one key informant stated:

> *There are truly things we can do to make our school infrastructure healthier… like using green cleaners like less harsh chemicals in the classrooms so kids have less asthma. (KI_8)*

Asthma in youth was mentioned by both key informant and community members, as well as geographic areas where asthma was seen most often. One key informant said, "*for Fairfield, what we have encountered as common among the families that we serve is asthma, especially in children*" (KI_7). Another key informant mentioned Rio Vista as having high rates of asthma. A key informant from Rio Vista said, *"for Rio Vista, I could say that asthma is one of our biggest things in this town. We hear a lot [about] adults and kids with asthma…" (KI_7).*

Issues of second-hand smoke in low-income housing units were also mentioned as a concern for the health of many residents. One key informant stated:

> *If someone is in Section 8 Housing or in a multi-unit housing and smoke drifts through outlets and across patios and through heating and ventilation HVAC systems and so children and seniors or anyone who is exposed to secondhand smoke in their dwelling… can't have a choice, who may not have a voice (KI_9).*

Rates -- ED visits and hospitalizations due to tuberculosis

Table 17: ED visit and hospitalization counts due to tuberculosis compared to county and state benchmarks (rates per 10,000 population)

	ZIP Code	ED Visits	Hospitalizations
Tuberculosis	94510	1	1
	94512	0	0
	94533*	4	15
	94534	1	1
	94535	0	0
	94571*	0	1
	94585	0	4
	94589*	3	4
	94590*	1	9
	94591*	2	15
	94592	0	1
	95690	0	0
	95694	0	3
	95618	0	1
	95620	0	0
	95625	0	0
	95687	2	6
	95688*	1	12
	Solano County	15	69
	CA State	1,705	9,166

Source: OSHPD, 2011-2013
Indicates Focus Community

As table 17 shows, there were a total of 15 counts of ED visits due to tuberculosis (TB) in Solano County. The ZIP code with the highest count was 94533 (East Fairfield) at four ED visits due to TB. Other ZIP codes that had at least one or more counts of ED visits due to TB include 94510 (Benicia), 94534 (West Fairfield), 94589 (North Vallejo), 94590 (South/Central Vallejo), 94591 (East Vallejo), 95687 (East Vacaville) and 95688 (West Vacaville). For hospitalizations due to TB, there were a total of 69 counts in Solano County. The ZIP codes with the highest counts were 94533 (East Fairfield), 94591 (East Vallejo) and 95688 (West Vacaville) at 12 or more hospitalizations due to TB.

Mental Health

Mental illness is defined as "health conditions that are characterized by alterations in thinking, mood, or behavior (or some combination thereof) associated with distress and/or impaired functioning."[13] Depression is the most common type of mental illness in the United States and by 2020 will be the second leading cause of disability worldwide. Mental illness is strongly correlated with many risks for chronic diseases, such as physical inactivity, smoking, excessive drinking, and insufficient sleep.[14] Mental health data at the sub-county level is difficult to obtain. ED visits and hospitalizations due to mental health conditions are provided in Table 18 as a way of examining mental health in the HSA.

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[13]Centers for Disease Control and Prevention. (2013). Mental Health Basics. Retrieved from: http://www.cdc.gov/mentalhealth/basics.htm
[14] Ibid.

Rates -- ED visits and hospitalizations due to mental health

Table 18: 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	94510	259.24	158.66
	94512	91.34	109.80
	94533*	259.14	186.82
	94534	153.77	110.47
	94535	12.44	27.20
	94571*	293.13	281.61
	94585	188.99	141.65
	94589*	373.68	208.45
	94590*	522.80	252.42
	94591*	283.46	152.65
	94592	272.90	158.46
	95690	167.20	150.76
	95694	148.55	115.95
	95618	106.13	91.48
	95620	160.04	126.71
	95625	803.13	346.79
	95687	227.13	154.28
	95688*	230.35	200.83
	Solano County	263.42	169.96
	CA State	149.93	186.92

Source: OSHPD, 2011-2013
Indicates Focus Community

ED visits due to mental health conditions were high in 78% of the ZIP codes in Solano County, relative to the state rate. The rate of ED visits related to mental health issues in ZIP code 95625 (Elmira) was drastically higher than any other ZIP code in the HSA at 803.13 ED visits per 10,000 population, three times the county rate and five times the state rate. Six of the 18 ZIP codes in Solano County had elevated rates of mental health-related hospitalizations, compared to the county benchmark at 169.96 hospitalizations per 10,000 population. ZIP code 95625 also had the highest rate of hospitalizations for mental health at 346.79 per 10,000, approximately two times higher than the county and state benchmarks.

Data by race and ethnicity for ED visits due to mental health showed that Whites had a rate of 360.84 per 10,000, compared to Hispanics at 124.32, Native Americans at 553.89, Asians/Pacific Islanders at 88.39, and Blacks at 456.37 per 10,000 population. The highest rate of ED visits due to mental health was in the Native American population, over six times higher than that of the Asian/Pacific Islander population. Data by race/ethnicity for hospitalizations due to mental health found that Whites had a rate of 248.88, compared to Hispanics at 75.24, Native Americans at 202.10, Asians/Pacific Islanders at 81.61, and Blacks at 229.14 per 10,000 population. The Whites had the highest rate for hospitalizations due to mental health, followed by the Black population.

One of the major findings of the primary data was the high frequency of mental illness in the county and the need for mental health services. Lack of psychiatrists and access to mental health providers has resulted in many residents going untreated for mental illness. Participants discussed patients needing care for mental illness and having a difficult time getting adequate care in the HSA. The need for access to mental health/behavioral health services was mentioned in all 17 primary data sources. Mental illness ranged from stress and depression to dementia and schizophrenia.

One community member spoke about the need for more mental health providers and counselors in all three major cities (i.e., Vacaville, Fairfield and Vallejo) who have experience and education working with LGBTQ populations. The same community member also stated, "*We need culturally competent health care. For all types of health care, not just mental health" (FG_4)*
Participants spoke about cultural differences in accepting and understanding mental illness. As one provider stated, "f*or mental health, the Filipino [and] API communities are challenged by the concept of mental illness… do not have really a place in the cultural vocabulary for it and would be last to notice it"* (KI_4).

As one community member stated, "t*here's no Filipino word for depression…it is seen as a form of weakness. You're supposed to snap out of it. You're not allowed to be depressed, so then you can't get services. Kids are hiding it inside…it manifests as physical violence" (FG_1).*

Participants also spoke about mental illness in the homeless populations of the county, stating the majority of the homeless population suffers from mental illness and substance abuse. It was mentioned that more than half the homeless population have dual diagnoses.

Percent-- Adults reporting insufficient social and emotional support (age-adjusted)
Aggregated data from the Centers for Disease Control and Prevention Behavioral Risk Factor Surveillance System survey for 2006-2012 showed that 23.2% of respondents in Solano County, over the age of 18, indicated that they receive insufficient social and emotional support most of the time. This percent was lower than the state percent at 24.6% of respondents.

Dental Health

Oral health is important to overall quality of life. Data used in this assessment to examine the status of oral health in the Solano County HSA included rates of ED visits and hospitalizations related to dental conditions. This data is dated from 2011 – 2013 before the reinstatement of dental coverage under the state Medicaid (Medi-Cal) program. Additional examination of data on dental health is included in later sections of this report.

Rates -- ED visits and hospitalizations due to dental health

Table 19: 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 Health	94510	27.17	6.74
	94512	32.32	0.00
	94533*	102.77	10.72
	94534	21.63	4.87
	94535	6.82	3.70
	94571*	39.85	10.52
	94585	63.76	6.05
	94589*	83.13	8.39
	94590*	147.22	12.30
	94591*	59.43	8.31
	94592	40.25	7.47
	95690	32.08	8.00
	95694	38.71	5.76
	95618	17.54	4.88
	95620	37.98	6.77
	95625	195.28	8.39
	95687	49.86	7.82
	95688*	45.45	9.90
Solano County		65.59	8.43
CA State		41.34	7.81

Source: OSHPD, 2011-2013
Indicates Focus Community

Rates of ED visits for dental health issues were elevated in eight of the 18 ZIP codes in Solano County compared to the state benchmark. Four of the 18 ZIP codes compared exceeded both the county and state benchmarks. ZIP codes with the highest rates of ED visits include 94533 (East Fairfield), 94590 (South/Central Vallejo) and 95625 (Elmira). Hospitalizations due to dental health were elevated in nine out of 18 ZIP codes in Solano County compared to the state benchmark. Four of the 18 ZIP codes exceeded both the county and state benchmarks. ZIP code 94590 (South/Central Vallejo) had the highest rate of hospitalizations due to dental health issues at 12.30 hospitalizations per 10,000 population.

Data by race and ethnicity for ED visits due to dental health showed that Whites had a rate of 66.98 per 10,000, compared to Native Americans at 77.35, Hispanics at 44.29, Asian/Pacific Islander at 13.98, and Blacks at 162.06 per 10,000 population, over two times the Solano County rate and almost four times

the state rate. Data by race and ethnicity for hospitalizations due to dental health indicated that Whites had a rate of 9.59 per 10,000, compared to Hispanics at 6.26, Native Americans at 12.48, Asians/Pacific Islanders at 5.58, and Blacks at 12.73 per 10,000 population. Similarly, the Black population had the highest rates of hospitalizations due to dental health, above the county and state benchmarks.

Injury -- Intentional (Suicide and Self- inflicted injury) and Unintentional

In 2013, suicide was the 10th leading cause of death nationally, and the second leading cause of death for Americans 15-34 years of age.[15] Unintentional injuries were the third leading cause of death overall but the first leading cause of death for Americans 1-44 years of age.[16] Unintentional injuries are defined as "predictable and preventable when proper safety precautions are taken" and not considered accidents.[17]

Rates -- Mortality, ED visits and hospitalizations due to suicide and self-inflicted injury
Table 20: 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
	94510	1.06	8.81	2.51
	94512	0.00	0.00	6.44
	94533*	0.73	14.50	3.68
	94534	0.62	5.99	2.36
	94535	0.00	2.18	2.08
	94571*	1.33	10.78	4.31
	94585	0.00	8.39	3.00
	94589*	0.83	12.37	2.31
	94590*	0.93	15.23	5.72
	94591*	0.85	7.59	2.67
Suicide/Self-Inflicted Injury	94592	0.00	9.32	4.65
	95690	0.00	8.25	3.18
	95694	0.00	9.75	3.35
	95618	1.25	5.05	2.69
	95620	0.00	8.54	3.21
	95625	0.00	14.83	0.00
	95687	1.36	10.08	4.22
	95688*	1.86	16.60	6.71
Solano County	0.94	10.94	3.63
CA State	1.04	8.18	4.40
Healthy People 2020	1.00	N/A	N/A

Sources: Mortality: CDPH, 2012; ED visits and hospitalizations: OSHPD, 2011-2013
Indicates Focus Community

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[15] Centers of Disease Control and Prevention. (2015). Ten leading causes of death by age group – 2013. Retrieved from: http://www.cdc.gov/injury/wisqars/leadingcauses.html
[16] Ibid.
[17] Ibid.

ZIP code 95688 (West Vacaville) had the highest rates for mortality, ED visits and hospitalizations due to self-inflicted injury compared to all other ZIP codes in Solano County. Five out of 18 ZIP codes had elevated rates for mortality due to self-inflicted injury. Rates of ED visits due to self-inflicted injury were elevated in thirteen of the 18 ZIP codes compared to the state benchmark, with ZIP code 95688 (West Vacaville) showing the highest rate at 16.60 ED visits due to intentional self-harm per 10,000. The same ZIP code had the highest rate due to hospitalizations for self-inflicted injury at 6.71 per 10,000.

Data by race and ethnicity found that the rate of ED visits due to self-inflicted injuries for Whites was 14.35 per 10,000 population, compared to Hispanics at 7.24, Native Americans at 22.46, Asians/Pacific Islanders at 3.65, and Blacks at 14.41 per 10,000 population. The Native American population had the highest rate of ED visits due to self-inflicted injuries compared to the other race and ethnic groups. Data by race and ethnicity found that the rate of hospitalizations due to self-inflicted injuries for Whites was 5.41 per 10,000, compared to Hispanics at 2.28, Native Americans at 9.98, Asians/Pacific Islanders at 1.25, and Blacks at 3.70 per 10,000 population. The Native American population also had the highest rate of hospitalizations due to self-inflicted injuries, above both the county and state benchmarks.

Rates -- Mortality, ED visits and hospitalizations due to unintentional injury
Table 21: Mortality, ED visit and hospitalization rates due to unintentional injury compared to county and state benchmarks (rates per 10,000 population)

	ZIP Code	Mortality	ED Visits	Hospitalizations
Unintentional Injury	94510	2.17	738.31	138.08
	94512	0.00	532.99	176.92
	94533*	2.60	1124.02	177.96
	94534	2.19	629.21	132.15
	94535	0.00	102.93	28.25
	94571*	2.74	742.17	278.87
	94585	1.84	841.27	129.02
	94589*	3.32	1076.99	171.94
	94590*	3.89	1522.23	210.52
	94591*	3.14	911.13	149.90
	94592	0.00	995.98	163.19
	95690	3.76	634.11	215.10
	95694	2.08	644.23	115.40
	95618	1.71	407.75	68.78
	95620	2.59	762.98	125.27
	95625	0.00	2252.02	217.92
	95687	3.01	802.35	143.61
	95688*	1.84	1005.20	220.20
	Solano County	2.63	935.70	161.45
	CA State	2.88	666.38	154.85
	Healthy People 2020	3.40	N/A	N/A

Sources: Mortality: CDPH, 2012; ED visits and hospitalizations: OSHPD, 2011-2013
Indicates Focus Community

Mortality rates due to unintentional injury were elevated in 33% of the ZIP codes in Solano County, relative to the county benchmark. ZIP codes 94589 (North Vallejo), 94590 (South/Central Vallejo), 94591

(East Vallejo) and 95690 (Walnut Grove) showed the highest rates compared to the county, state and Healthy People 2020 benchmarks. ZIP code 95625 (Elmira) had over two times the county and three times the state rate for ED visits due to unintentional injury at 2252.02 per 10,000. Fifty-percent of the ZIP codes in Solano County showed high rates of hospitalizations due to unintentional injury compared to the county and state benchmarks.

Data by race and ethnicity for ED visits due to unintentional injury showed that Whites had a rate of 1051.75 per 10,000, compared to Hispanics at 732.41, Native Americans at 950.60, Asians/Pacific Islanders at 371.51, and Blacks at 1582.34 per 10,000 population, clearly above the state and county benchmarks. Data by race and ethnicity for hospitalizations due to unintentional injury showed that Whites had a rate of 213.43 per 10,000, compared to Hispanics at 95.04, Native Americans at 167.17, Asians/Pacific Islanders at 106.50, and Blacks at 205.58 per 10,000 population. Hospitalizations due to unintentional injury were highest in the White population, above both the county and state benchmarks.

Risk Behaviors and Living Conditions in Solano County

Risk behaviors contribute to increased risk for morbidity and mortality of most health conditions in a community, and are often the focus of community-based health promotion efforts. These risk behaviors include smoking, poor nutrition, physical inactivity, violent behavior, alcohol and drug usage, and risky sexual behaviors. In order to gain a clear understanding of reasons behind why individuals engage in risky behavior it is equally important to consider the conditions in which they live. These living conditions include the physical, social, economic/work, and service environment.

Risk Behaviors – Substance Abuse, Poor Nutrition, Physical Inactivity, and Risky Sexual Behavior

This section of the report will detail all indicators used in the assessment to examine the various risk behaviors in Solano County communities.

Substance Abuse

Substance abuse, specifically the use of alcohol and drugs, is a leading preventable cause of death in the United States, costing states millions of dollars each year in treatment costs.[18] Alcohol impaired driving is the cause of 33% of all fatal car accidents.[19] This assessment included examination of multiple indicators addressing substance abuse. The indicators presented here include: ED visits and hospitalizations due to substance abuse by ZIP code, alcohol and tobacco smoking prevalence, liquor store access and percent of household expenditures for alcohol and tobacco. Prescription drug abuse has also become a major problem for adults nationally.[20]

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[18] Centers for Disease Control and Prevention. (2015.) *Alcohol and Drug Use*. Retrieved from: http://www.cdc.gov/stltpublichealth/didyouknow/topic/alcohol.html
[19] Ibid.
[20] Ibid.

Rates -- ED visits and Hospitalizations due to Substance Abuse

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

	ZIP Code	ED Visits	Hospitalizations
	94510	334.28	113.76
	94512	157.41	128.56
	94533*	421.38	181.09
	94534	160.20	74.79
	94535	27.13	25.61
	94571*	312.93	205.94
	94585	307.28	135.32
	94589*	762.71	186.08
Substance Abuse+	94590*	1480.94	312.17
	94591*	550.91	134.68
	94592	285.17	106.83
	95690	271.85	174.89
	95694	265.58	103.96
	95618	127.60	44.17
	95620	291.83	103.97
	95625	942.30	285.86
	95687	268.81	120.95
	95688*	289.65	195.15
	Solano County	466.25	155.25
	CA State	*253.80*	*145.00*

Source: OSHPD, 2011-2013, +coded under **Mental Health codes**
Indicates Focus Community

Examination of ED visits due to substance abuse showed elevated rates in 78% of the ZIP codes in Solano County compared to the state benchmark. ZIP codes 94589 (North Vallejo), 94590 (South/Central Vallejo), 94591 (East Vallejo) and 95625 (Elmira) had the highest rates of ED visits due to substance abuse compared to the state and county benchmark, with ZIP code 94590 having the highest rate at 1480.94 ED visits due to substance abuse per 10,000 population. ZIP code 94590 (South/Central Vallejo) also had the highest rate of hospitalizations due to substance abuse at 312.17 per 10,000, just over two times the county and state benchmarks.

Data by race and ethnicity for ED visits due to substance abuse showed that Whites had a rate of 535.25 ED visits per 10,000, compared to Hispanics at 226.39, Native Americans at 755.99, Asians/Pacific Islanders at 126.74, and Blacks at 1121.10 per 10,000 population, more than two times the county rate and over four times the state rate. Data by race and ethnicity for hospitalizations due to substance abuse showed that Whites had a rate of 204.52 hospitalizations per 10,000, compared to Hispanics at 74.60, Native Americans at 306.89, Asians/Pacific Islanders at 55.47, and Blacks at 229.14 per 10,000 population. The Native American population had the highest rate of hospitalizations due to substance abuse per 10,000, above both the county and state benchmarks.

Key informant and focus group participants spoke about the need for more substance abuse treatment facilities in the county. Substance abuse treatment programs to support homeless, as well as youth, were specifically mentioned. Community members expressed concern with the lack of consistent and comprehensive care, which sometimes resulted in recidivism with many residents going back to using substances. *"I don't know that it exists in Solano" (KI_11)*, said one key informant during an interview when talking about substance abuse treatment programs in Solano County. Another interviewee from a community member focus group said, *"what about drug and alcohol treatment programs? If you have a substance abuse issue, where can you go to get help?" (FG_5)*

Peer pressure to take drugs and alcohol was also mentioned as a concern for the community. As one community member said, *"there's a lot of peer pressure as teenagers. A lot of people want to do what other people are doing such as drugs and alcohol. Nobody's really thinking about what the effects are, they're just thinking about what others are doing." (FG_3)*

Key informant and focus group interviewees also mentioned tobacco use as an issue in both adults and teens; however, tobacco-free policies were mentioned as being implemented in communities in Solano County such as tobacco-free campuses. An interviewee from a community member focus group talked about their concerns with tobacco use, including others drugs, *"drug and alcohol abuse is also really big. This includes crack, crystal meth, alcohol and cigarettes" (FG_6).* One key informant interviewee talked about the correlation between tobacco use and disease, *"physical inactivity, healthy eating and tobacco use are our top three modifiable risk factors that impact some many others things" (KI_8).* The use of marijuana and the number of medical marijuana dispensaries in Solano County was concerning for key informants, especially in Vallejo. One key informant mentioned about Vallejo, *"the vaping stores have been opening up, but the problem with those stores isn't really the tobacco and nicotine, so much as it is that they're becoming more focused on marijuana and dispensing marijuana" (KI_10).*

Percent – Adults reporting excessive alcohol consumption (age-adjusted)
Results of the national Center for Disease Control and Prevention Behavioral Risk Factor Surveillance System survey indicated that approximately 18.6% of respondents in Solano County reported that they engaged in excessive alcohol consumption (more than 2 drinks per day for males and more than 1 per day for females), higher than the state rate at 17.2%.

Rate -- Liquor store access per 100,000 population
Data on liquor stores from the US Census Bureau for 2012 revealed that Solano County has 6.77 liquor stores per 100,000 people, lower than the state rate of 10.02 per 100,000.

Percent -- Home expenditures spent on alcohol
Alcohol expenditure data from Nielsen (2014) showed the percent of at home expenditures for alcohol at the census tract level. Data aggregated to the HSA level showed that the percent of alcohol expenditures for the HSA was 13.1%, above the state percent at 12.9%.

Percent -- Prevalence of tobacco usage
Data from the California Health Interview Survey for 2014 showed that the prevalence of smoking among adults and teens was 11.1% for Solano County compared to the state prevalence at 10.8%.

Percent -- Home expenditures spent on tobacco

Tobacco expenditure data from Nielsen (2014) indicated the percent of at home expenditures for tobacco at the census tract level. This indicator aggregated to the HSA level showed that the percent of expenditures for the HSA was 1.1%, similar to the state percent at 1.0% for 2014.

Obesity, Poor Nutrition and Physical Inactivity

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 sections of the report. Consideration of diet and exercise data for this health assessment included an examination of obesity data. Many factors contribute to high rates of obesity, poor nutrition, lack of physical activity and chronic disease in Solano County. These factors included conditions of poverty, access to health care and healthy foods, pollution in a community, and education.

Percent -- Overweight and obese in youth

Table 23: Percent overweight and obesity in youth grades 5th, 7th and 9th as measured by the FitnessGram

Indicator	Percent Overweight	Percent Obese
Solano County	20.4%	21.0%
CA State	19.3%	19.0%

California Department of Education, 2013-2014

As the data presented in Table 23 indicates, the percent overweight and obese in youth was slightly higher in the Solano County in comparison to the state benchmark. Additionally, data by race and ethnicity indicated that the percent of White overweight students was 17.81% compared to Black students at 21.09%, Hispanic students at 22.89% and multiple race at 21.44%. Unfortunately, overweight and obesity data is seldom available at the ZIP code level in order to examine how rates compare within the Solano County HSA.

Percent -- Mothers reporting breastfeeding

Research indicated that when a child is breastfed the risk for negative health conditions decreases, especially reducing the risk for infant mortality. According to data from the California Department of Public Health for 2012, the percent of mothers breastfeeding their infants at birth was slightly higher for Solano County at 94.4% compared to the state percent at 93.0%. Data by race and ethnicity revealed that while 94.8% of Whites report breastfeeding, 87.1% of Blacks, 97.2% Asian, 95.6% Hispanic/Latino, 97.2% non-Hispanic other and 95.09% non-Hispanic multiple race reported breast feeding their infants at birth.

The USDA defines a food desert 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."[21] As defined by USDA and indicated in Figure 9, any census tract with distances greater than 1 mile to the nearest supermarket in urban areas, and greater than 10 miles to the nearest supermarket in rural areas are flagged as a food desert. 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.
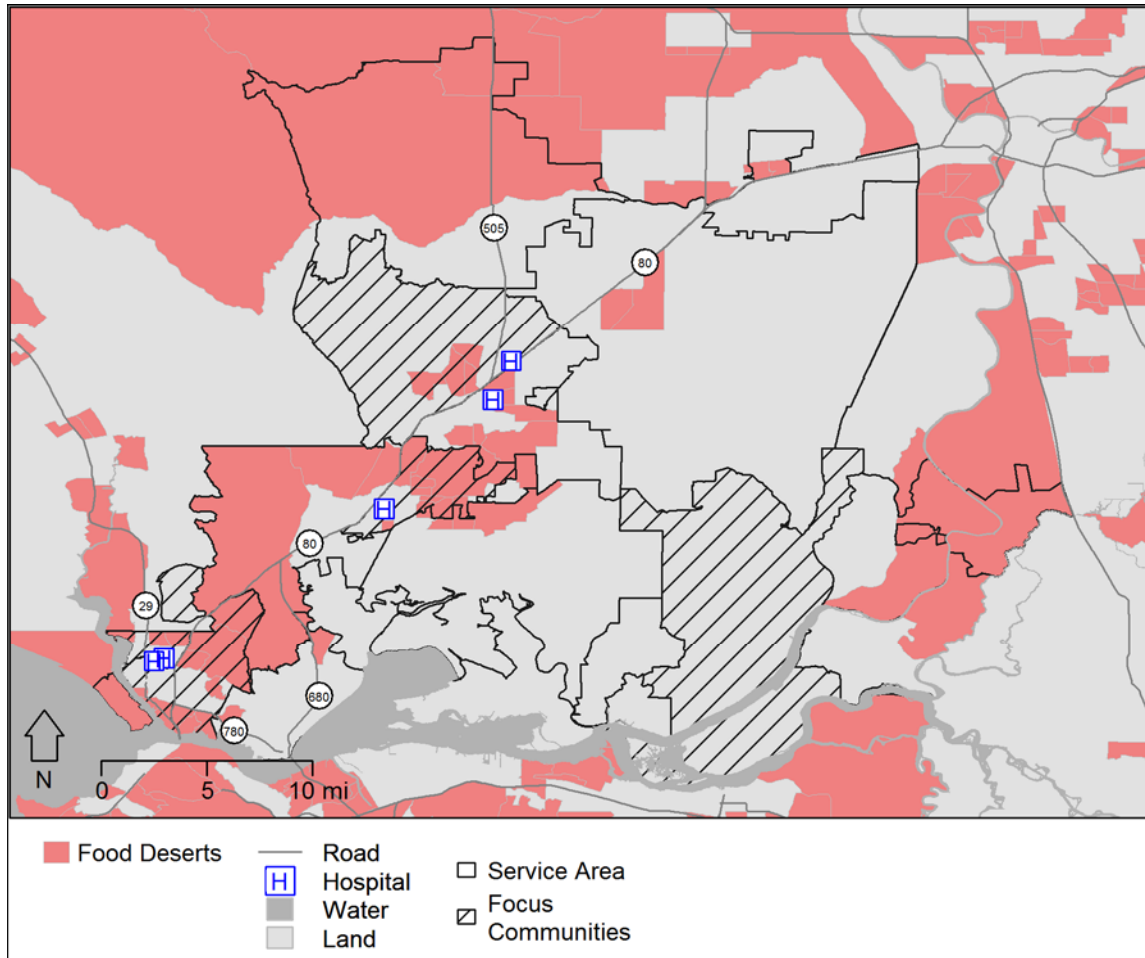
Figure 9: USDA defined food deserts
Source: USDA Defined Food Desert (2010)

As shown in Figure 9, portions of eight of 18 Solano County ZIP codes were designated USDA food deserts. The eight ZIP codes that contained a food desert area include 94533 (East Fairfield) and 94534 (West Fairfield), 94571 (Rio Vista), 94585 (Suisun City), 94590 (South/Central Vallejo), 94591 (East Vallejo), 95618 (Davis) and 95620 (Dixon).

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

Primary data indicated that a lack of retail in low income areas in the Solano County HSA means a lack of access to healthy and affordable food options for residents. Participants spoke about the absence of stores that provide affordable and healthy foods in low income areas of the county, yet an overabundance of unhealthy options. As one community member mentioned:

> *Trying to find healthy food is just difficult economically because it's so much more expensive than buying a Double Double at McDonald's and it's so much more convenient…in the neighborhood where I live, I live in apartments so I know most people don't buy healthy food because you have to go out of the way just to get that healthy food" (FG_3).*

One service provider mentioned a specific community that's deemed a food desert. *"Certain areas of Vallejo are deemed as a food desert, there's a lot of families that doesn't have access to healthy foods and therefore affecting their health" (KI_7).*

Percent -- Population with food insecurity and receiving Supplementary Nutrition Assistance Program

According to Feeding America, the percentage of population with food insecurity in 2013 for Solano County (15.2%) was slightly higher than the state percent (15.0%). Also, the percentage of population receiving SNAP (Supplementary Nutrition Assistance Program) in 2011 was slightly lower for Solano County (9.7%) compared to the state percent (10.6%).
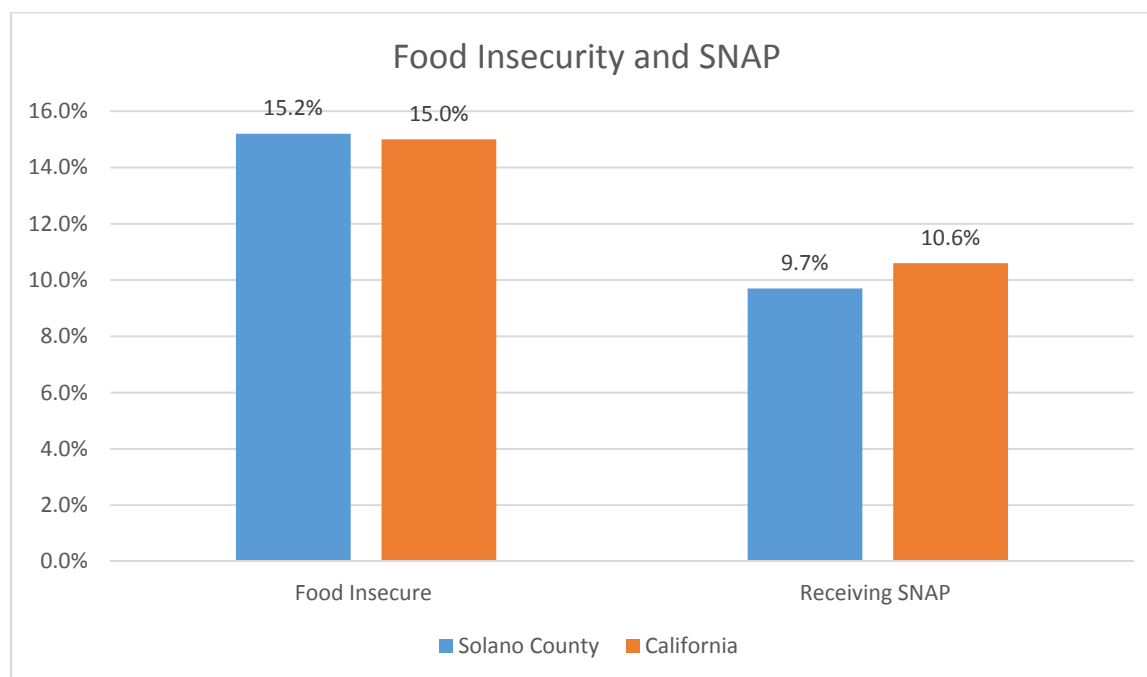
Figure 10: Percent food Insecure and percent receiving SNAP
Sources: Feeding America, 2013; US Census Bureau, 2011

The modified Retail Food Environment Index (mRFEI) consists of 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, from among all food outlets, in the ZIP code. Figure 11 shows the mRFEI for the Solano County HSA. Lighter areas indicate poor or no access to healthy food outlets and darker areas indicate greater access to healthy food outlets.
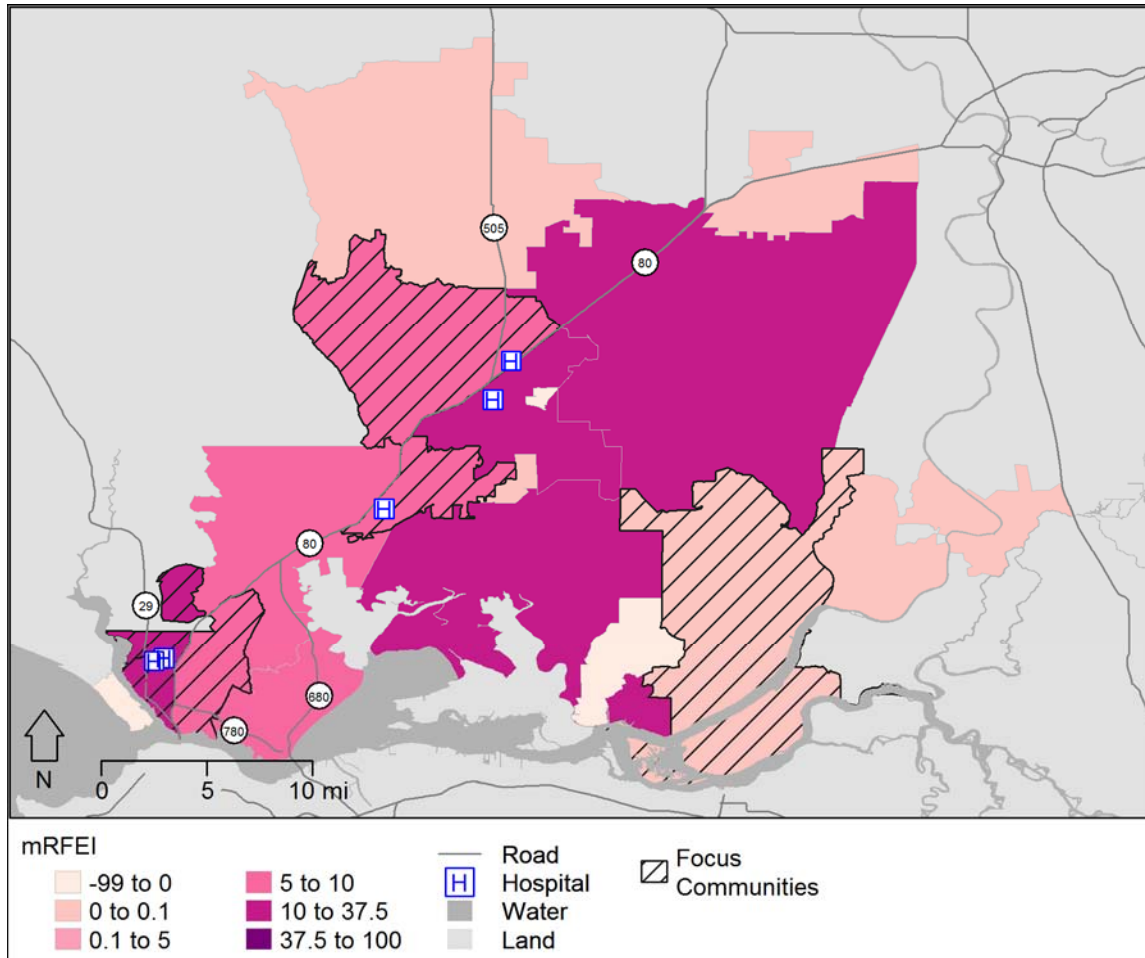
Figure 11: Modified Retail Food Environment Index (mRFEI)
Source: US Census Bureau County Business Patterns, 2013

As shown in Figure 11, many Solano County ZIP codes had lower mRFEI scores, indicating poor or no access to healthy foods. More specifically, the ZIP code areas of 94585 (Suisun City), 94589 (North Vallejo), 94590 (South/Central Vallejo) and 95625 (Elmira) had lower mRFEI scores.

According to business data reported by the US Census Bureau in 2011, the rate of fast food restaurants for the Solano County HSA was lower than the state rate of 74.51 per 100,000 population. Additionally, the rate of grocery stores for the Solano County HSA was lower than the state rate of 21.51 per 100,000 population. Data indicated that the Solano County HSA had fewer fast food restaurants and fewer grocery stores per 100,000 population compared to the state.
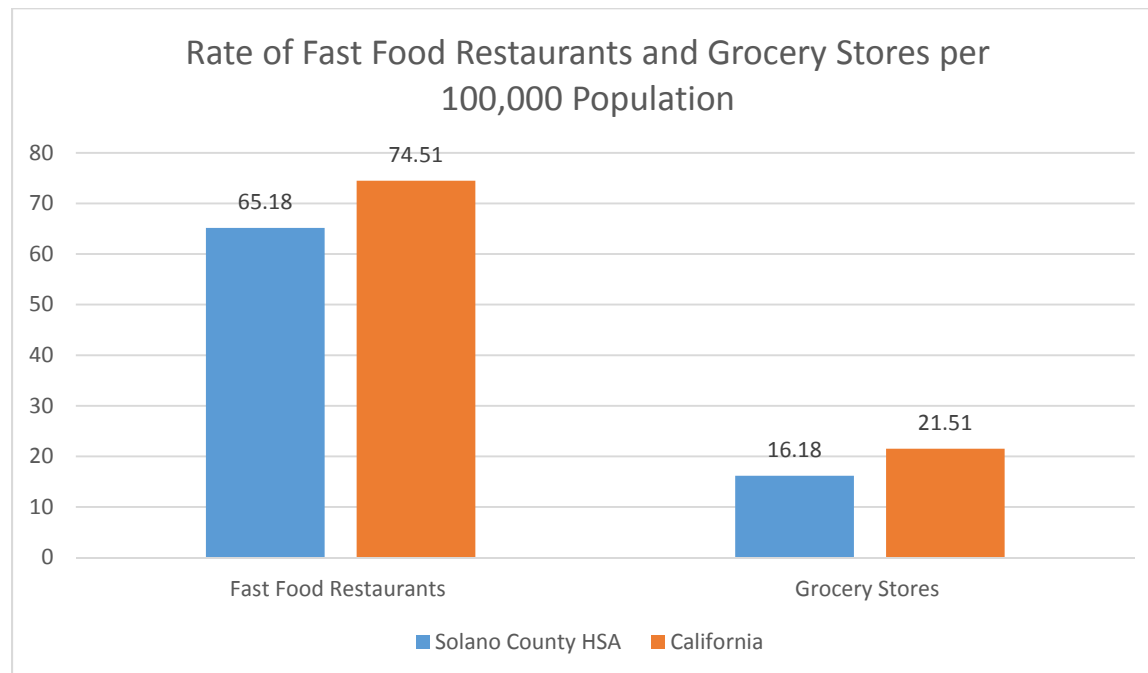
Figure 12: Fast food restaurants and grocery stores per 100,000 population
Source: US Census Bureau, County Business Patterns, 2011

Key informant and focus group interviewees talked about their concerns with a large variety of fast food restaurants in their neighborhood. One community member described the challenge of balancing healthy eating options and exercise. The community member stated, *"In Vallejo, we have more fast foods restaurants than we have healthy exercising places" (FG_4).* Another community member said, *"The healthier foods are obviously more expensive and plus, there's like three McDonalds, there's Taco Bells, there's so many fast food restaurants and it's always close to someone's house" (FG_3).* One key informant interviewee mentioned fast food regulations, *"I think there should be more regulations to monitor how much fast food is in a neighborhood (KI_5).*

Percent – Youth eating less than five servings of fruits and vegetables a day

Data from the 2011-2012 California Health Interview Survey indicated that 44.0% of youth in Solano County reported eating less than five servings of fruits and vegetables daily, below the state rate at 47.4%. Examination by race and ethnicity showed that 34.0% of Whites report eating less than five servings a day, compared to Blacks at 53.7% and Hispanic/Latino at 62.9%.

Percent – Home expenditures spent on fruits and vegetables and soda

County results for the percent of at-home food expenditures for fruits and vegetables, as well as sodas were close to the state rate. Data from Nielsen (2014) showed that the percent of food expenditures for

fruits and vegetables was 14.0% for the HSA, only slightly lower than the state percent of 14.1%. The same is true for soda expenditures. The soda expenditure percent was 3.5% for the HSA, slightly below the state percent of 3.6%.

Percent -- Physical inactivity for adults and youth

Indicators which examine physical activity in the HSA are very hard to find. In 2012, the CDC reported that the percent of adults over the age of 20 indicating they perform no regular physical activity was 18.2% for the HSA, slightly above the state rate of 16.6%. Physical inactivity for youth in the HSA, as reported using the Fitnessgram Physical Fitness Test, was also above the state rate. There were 44% of youth in grades 5, 7, and 9 classified as physically inactive, compared to the state percent at 35.9%. Examination by race and ethnicity revealed that 32.5% of Whites were classified as physically inactive, compared to 43.7% of Blacks, 30.5% of Asians, 41.6% of non-Hispanic multiple race, and 49.2% of Hispanic/Latinos.

One interviewee from a community member focus group mentioned safety as a concern in engaging in physical activity. The community member mentioned, *"it's really hard to exercise in Vallejo because, like if you wanted to run it's dangerous and you have no open free space that's free to exercise." (FG_3).*

Access to recreational areas contributes to whether or not people will be physically active. Figure 13 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.
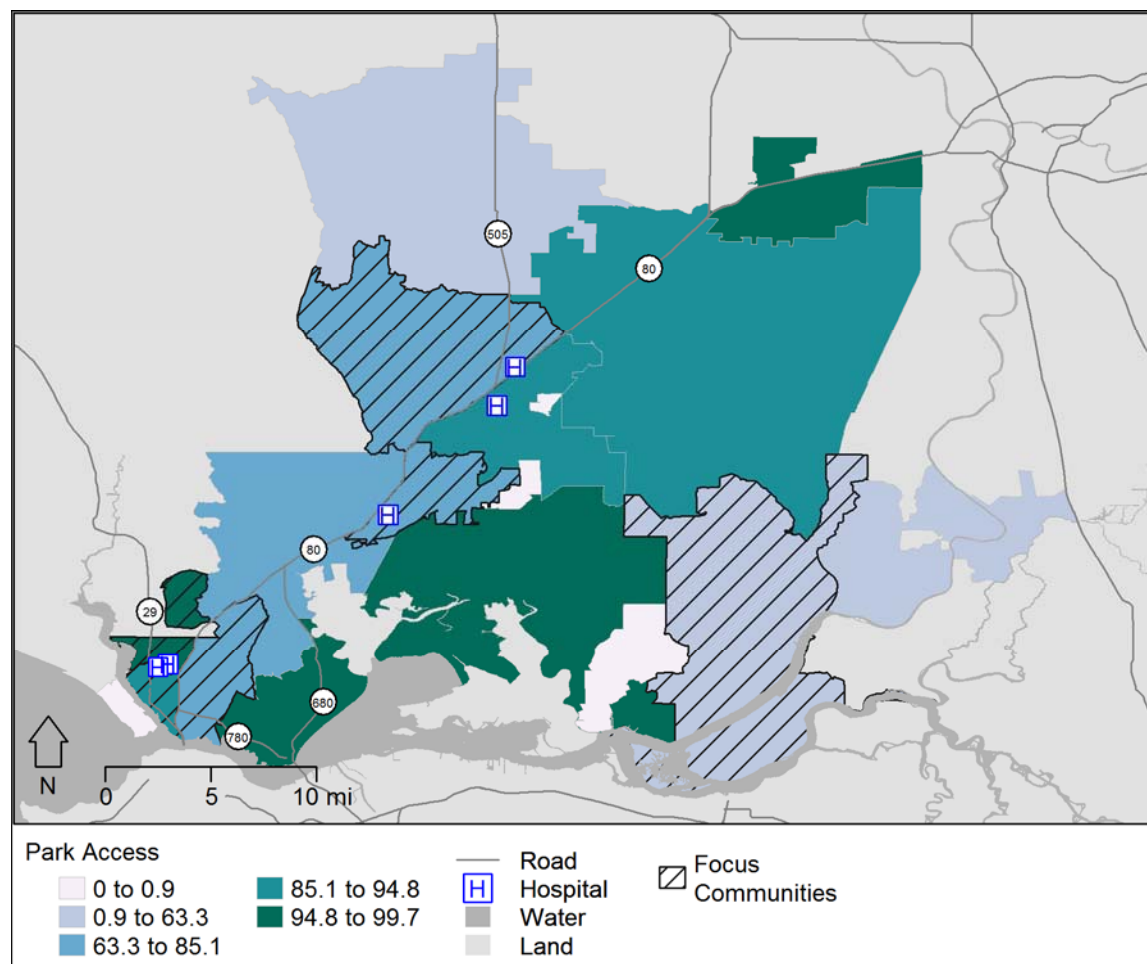
Figure 13: Percent of population by ZIP code that live within one-half mile of a park
Source: ESRI U.S. Parks, 2014

As displayed in Figure 13, access to a park varies among the Solano County communities. ZIP codes 94512 (Birds Landing), 94571 (Rio Vista), 94592 (Mare Island) and 95625 (Elmira) had the lowest percent of the population with access to a park in their community. Having access to a park or physical space where people of all ages can engage in play and be physically active is important for overall health and wellbeing. Unfortunately, this indicator is not available at the census tract level, making it difficult to examine variation within each ZIP code.

Key informants and focus group members stated that safe community parks were lacking in pockets of the Solano County HSA. Where parks do exist, there were concerns of safety, and many residents were hesitant to play in the parks. One focus group community member said, "*I don't want my kids to be playing at the park where you got needles around*" (FG_5). One key informant interviewee said:

You pretty much have to look for a park that's safe and drive there and not a lot of people...have the luxury of jumping in the car and driving, probably two miles, just to find a place and go to the park (KI_11)

Risky Sexual Behavior -- Teen birth rate and sexually transmitted Infections (Chlamydia, Gonorrhea, and HIV/AIDS)

Rate -- Teen births to women 15 to 19 years old

The teen birth rate (births to women 15-19 years old) is an indicator used in this assessment to examine sexual behavior throughout the HSA. Data from 2013 indicated that the national rate for teen births (age 15-19 years old) currently sits at 26.5 per 1,000 live births. [22] Figure 14 shows the teen birth rate for the Solano County HSA.
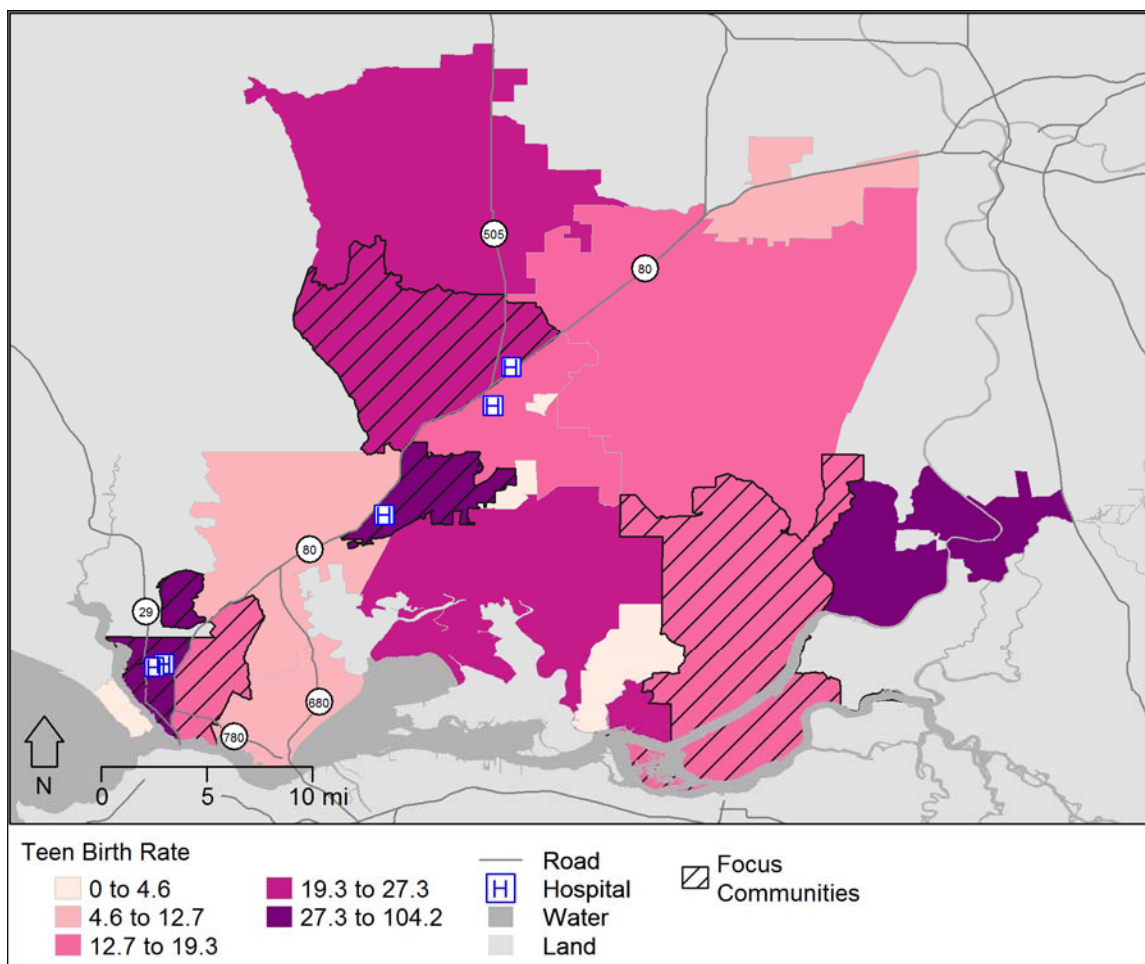
Figure 14: Teen birth rate for 15-19 year olds per 1,000 live births
Source: CDPH, 2010 – 2012

Four out of 18 ZIP codes in the HSA had higher teen birth rates compared to the county (24.10 per 1,000) and state (28.30 per 1,000) benchmarks. As Figure 14 shows, four of the 18 ZIP codes had teen

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

birth rates in the range of 29.64 to 104.10 per 1,000 teen births, clearly over the national rate of 26.50 per 1,000 live births. These four ZIP codes included the areas of 94533 (East Fairfield), 94589 (North Vallejo), 94590 (South/Central Vallejo) and 95690 (Walnut Grove). ZIP code 95690 (Walnut Grove) had the highest rate of teen births at 104.10 per 1,000 live births.

Sexually transmitted infections (STIs) - Chlamydia, Gonorrhea, and HIV/AIDS
Rates of STIs, including chlamydia, gonorrhea, and HIV, illustrate the presence of risky sexual behavior in the HSA. Since STIs are largely preventable, knowing where community members are infected by STIs helps with targeting interventions for treatment and prevention. Tables 24 and 25, as well as Figures 15 and 16, display incidence rates for chlamydia and gonorrhea per 100,000 population. Incidence rates are a measure of new cases of disease of condition in a community. Table 26 shows rates of ED visits and hospitalizations related to STIs, as well as those specific to HIV/AIDS.

Rates -- Chlamydia and Gonorrhea Incidence
Table 24: Chlamydia incidence rates for 2014 in Solano County (per 100,000)

Area	Incidence Rate
Solano County	527.40
CA State	453.40

Source: Solano County Public Health, 2014

As seen in Table 24, the chlamydia incidence rate in 2014 was elevated in the county compared to the state rate.
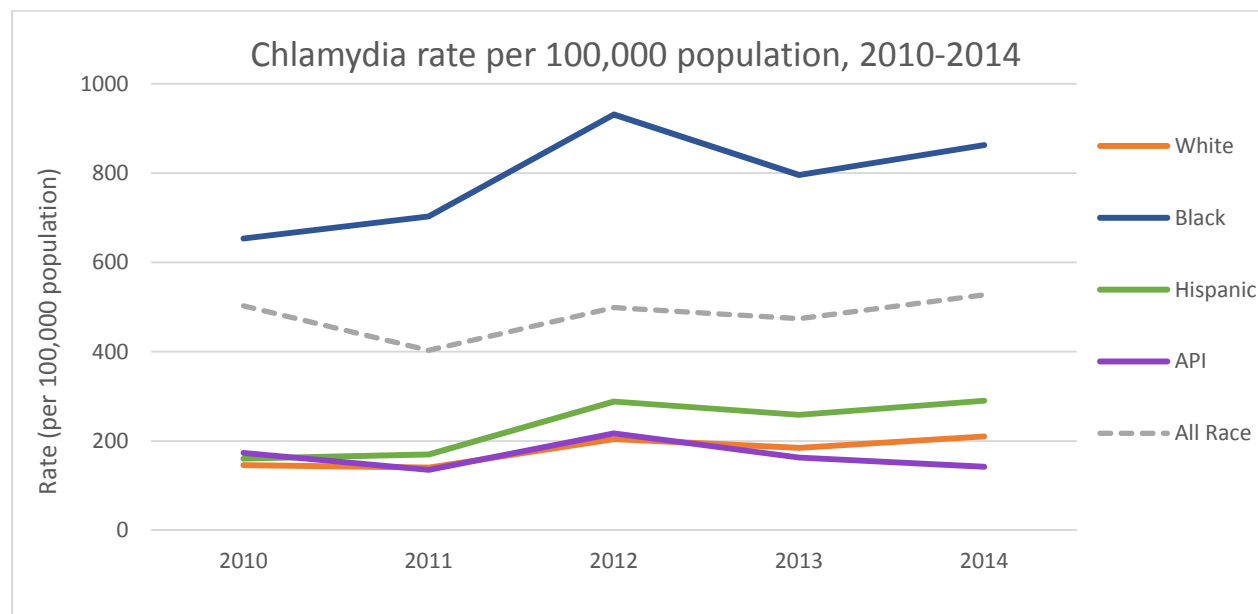
Figure 15: Chlamydia incidence rates (new cases) for 2010 through 2014 by race/ethnicity (rates per 100,000)
Source: Solano County Public Health, 2010 – 2014

As seen in Figure 15, chlamydia rates among Blacks were higher in Solano County than other racial/ethnic groups. More specifically, chlamydia rates among Blacks were four times higher than the rate of Whites in 2014, and far above both the county and state benchmarks shown in Table 24.

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Table 25: Gonorrhea incidence rates for 2014 in Solano County (per 100,000)

Area	Incidence Rate
Solano County	137.86
CA State	116.81

Source: Solano County Public Health, 2014

As seen in Table 25, the gonorrhea incidence rates in 2014 were elevated in the county compared to the state benchmark.
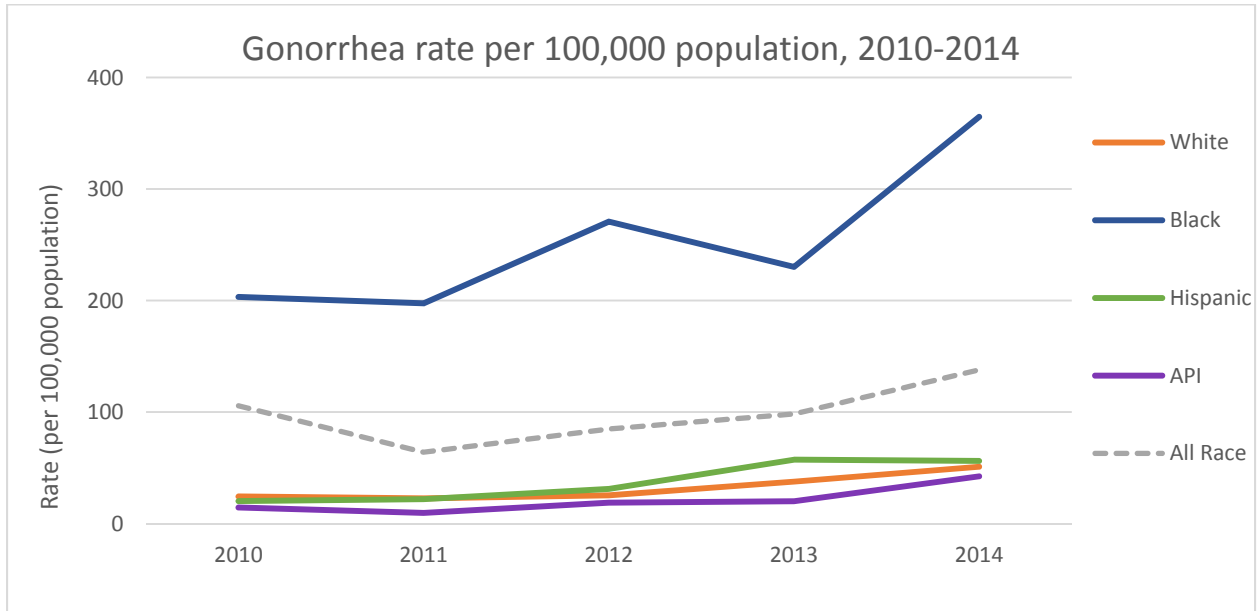
Figure 16: Gonorrhea incidence rates (new cases) for 2010 - 2014 by race/ethnicity (rates per 100,000)
Source: Solano County Public Health, 2010-2014

Gonorrhea rates were above the state benchmark in Solano County, especially among the Black population. The Black population had the highest rate of gonorrhea, which appeared to be increasing over the years and was over three times higher than the state benchmark and two times higher than the county benchmark in 2014. Gonorrhea rates among Blacks were also more than seven times higher than Whites in 2014.

Rates -- ED visits and hospitalizations due to STIs and HIV/AIDS

Table 26: 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	94510	1.74	1.39	1.11	0.52
	94512	0.00	0.00	0.00	0.00
	94533*	7.58	4.35	4.39	2.80
	94534	1.13	2.61	0.66	1.40
	94535	0.00	0.00	0.00	0.00
	94571*	3.01	3.47	1.31	2.60
	94585	2.43	3.12	1.27	1.85
	94589*	11.66	7.67	5.41	5.01
	94590*	15.51	9.30	6.72	7.50
	94591*	5.67	4.80	2.15	4.16
	94592	22.39	12.64	18.58	12.79
	95690	3.30	0.00	0.00	0.00
	95694	1.76	0.81	0.40	0.00
	95618	0.42	1.05	0.15	0.28
	95620	1.17	1.98	0.00	1.32
	95625	0.00	0.00	0.00	0.00
	95687	1.84	2.30	0.62	1.33
	95688*	2.72	8.01	1.94	6.47
	Solano County	5.21	4.43	2.50	3.16
	CA State	3.20	4.58	1.95	3.36

Source: OSHPD, 2011-2013
+HIV/AIDS is considered a subcategory of STIs in the ICD 9 diagnostic codes.
Indicates Focus Community

Table 26 indicates that rates of both ED visits and hospitalizations due to STIs were elevated in four of the 18 ZIP codes in Solano County. The highest rates for ED visits due to STIs were seen in ZIP codes 94589 (North Vallejo), 94590 (South/Central Vallejo), 94591 (East Vallejo) and 94592 (Mare Island), with the highest rate in ZIP code 94592 at 22.39 ED visits per 10,000 population, more than four times the county benchmark and seven times the state benchmark. The same ZIP code, 94592 (Mare Island), also showed the highest rate for hospitalizations due to STIs at 12.64 per 10,000, two times higher than the state and county benchmarks. The same three ZIP codes in the Vallejo area showed the highest rates for the STI subcategory of HIV/AIDS. Much like rates for the larger STI grouping, ZIP codes 94589 (North Vallejo), 94590 (South/Central Vallejo), 94591 (East Vallejo), and 94592 (Mare Island) had the highest rates of ED visits and/or hospitalizations due to HIV/AIDS. ZIP code 94592 (Mare Island) had the highest rate for ED visits due to HIV/AIDS at 18.58 per 10,000, six times higher than the county and over nine times higher than the state benchmark. Similarly, the same ZIP code had a high rate for hospitalizations due to HIV/AIDS at 12.79 per 10,000, four times higher than the state and county benchmark.

Data by race and ethnicity for ED visits due to STIs showed that Whites had a rate of 3.59 ED visits per 10,000 populations, compared to Hispanics at 2.41, Native Americans at 2.50, Asians/Pacific Islanders at 0.73, and Blacks at 20.83 per 10,000, nearly six time the rate of Whites. Data by race and ethnicity for

hospitalizations due to STIs showed that Whites had a rate of 4.11, compared to Hispanics at 1.91, Native Americans at 4.99, Asians/Pacific Islanders at 1.36, and Blacks at 13.89 per 10,000 population, clearly above both the state and county benchmarks.

Data by race and ethnicity for ED visits due to HIV/AIDS showed that Whites had a rate of 2.19 per 10,000, compared to Hispanics at 0.94, Native Americans at 2.50, Asian/Pacific Islanders at 0.37, and Blacks at 9.03 per 10,000 population, almost two times the county and state benchmarks and four times the rate of Whites. Data by race and ethnicity for hospitalizations due to HIV/AIDS showed that Whites had a rate of 2.82 per 10,000, compared Hispanics at 0.94, Native Americans at 2.50, and Asian/Pacific Islander at 0.83, and to Blacks at 11.00 per 10,000, above the county and state benchmarks.

Key informants and community members expressed concern over the high sexually transmitted infections (STI) and human immunodeficiency virus (HIV) rates with African Americans and teens. One key informant interviewee said, *"our fastest rising group is African American women who are showing up HIV positive. We're getting kids that are in high school that are HIV positive" (KI_10).* Another key informant interviewee said, *"We have very high rates of chlamydia… and it tends to be higher among African Americans and teens (KI_8).*

The LGTBQ community was also mentioned as having elevated risks of STIs, as well as sex trafficking. One focus group member said, *"sex trafficking is an issue with the LGBTQ population and aged out foster youth. They will do sex work for a place to stay" (FG_6).* Chlamydia, gonorrhea and HIV were mentioned as the most common STIs in the Solano County area. The community expressed concern over the lack of sexual health education, especially among youth and in schools. A focus group interviewee discussed current concerns with the lack of sex education, stating that *"sex education in schools is not good" (FG_6).*

Rate -- Prevalence of HIV/AIDS per 100,000 population
The CDC reported that for 2010, the prevalence of HIV/AIDS in the Solano County HSA was 345 cases per 100,000 population, lower than the state rate at 363 cases per 100,000. Data by race and ethnicity showed that Whites had a rate of 286.46 cases per 100,000, compared to Hispanic/Latinos at 269.51, and Blacks at 972.66 cases per 100,000, over two times the Solano County HSA rate.

Percent -- Adults never screened for HIV
Data from the national Centers for Disease Control and Prevention Behavioral Risk Factor Surveillance System survey for 2011-2012 indicated that as many as 59.7% of respondents between 18-70 years of age in Solano County reported never being screened for HIV, a percent equal to the state percent.

Living Conditions – Physical Environment, Social Environment, Economic/Work Environment and Service Environment
This section of the report will examine various indicators which help to illuminate the daily living conditions of Solano County residents. The indicators are organized in accordance to the BARHII model discussed previously: physical environment, social environment, economic/work environment, and service environment.

Physical Environment
Examination of the physical environment of the Solano County HSA included analyzing indicators of transportation, traffic accidents, housing, and pollution.

Area -- Population living one-half mile from a transit stop

There are limits to the distances community members will travel to access public transportation services. These distances are documented in research and vary due to a number of factors including climate, attractiveness of the area, and the amount of traffic on streets.[23] Most research states that individuals will travel no more than one-fourth to one-third of a mile to access public transportation. Identifying areas in the HSA that are at least one-half mile from a transit station helps to highlight transportation availability in the area. Figure 16 shows areas of the Solano County HSA in 2012 that were within one-half mile from a transit stop.
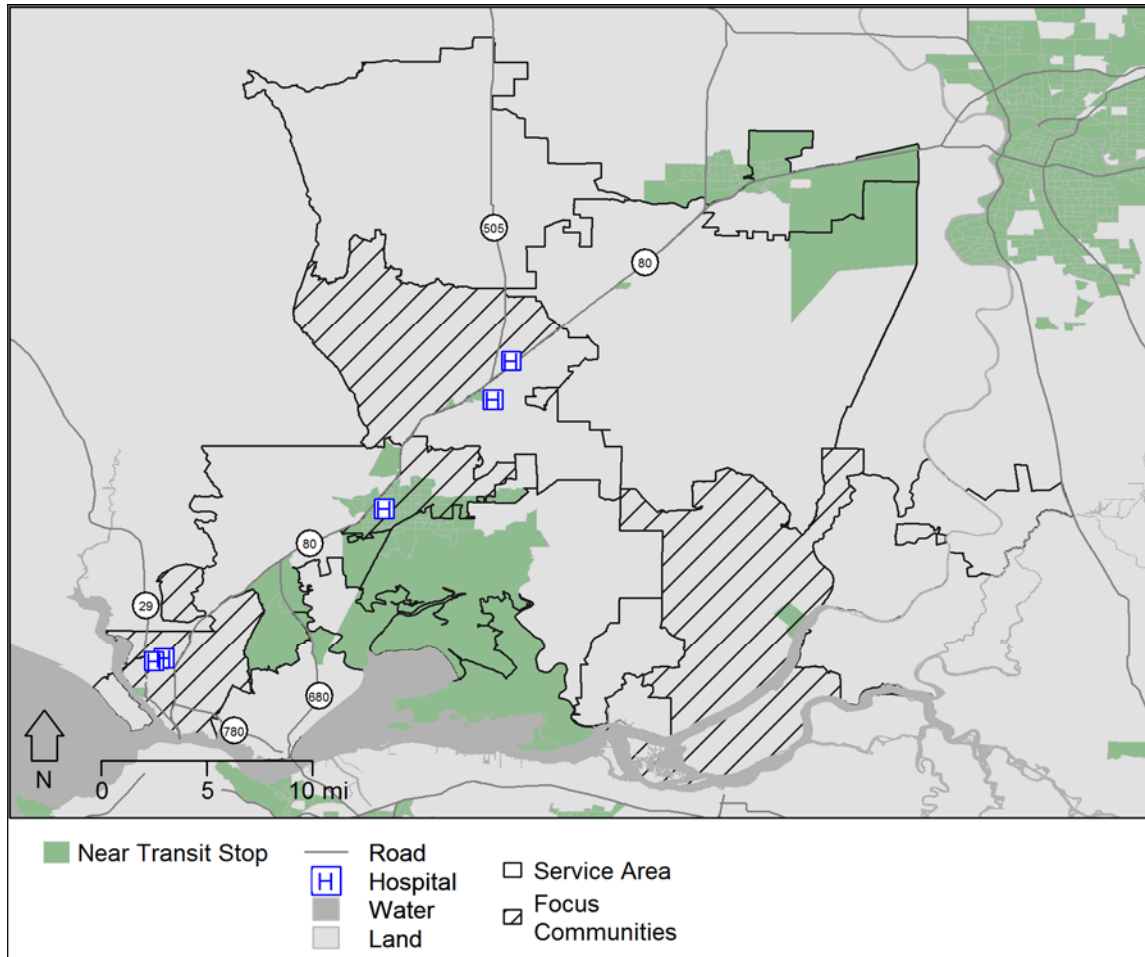
Figure 17: Locations in the HSA within one-half mile of a transit stop
Source: Health Resources and Services Administration, 2012

In Figure 17, grey shaded portions of the map were more than a half-mile from a transit stop. All 18 ZIP codes in Solano County were flagged as having areas where there is not a transit stop within one-half mile. Primary data also suggested that the transportation system in Solano County was not always accessible depending on where you lived in the county.

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[23]*Building Transit-Friendly Communities: A design and development strategy for the Tri-State Metropolitan Region* (1997). Regional Plan Association. Retrieved from: http://ntl.bts.gov/DOCS/GL.html

Percent -- Households with no vehicle

Having access to a vehicle is an important factor in the determination of a person's ability to access the things they need to stay healthy. A working vehicle means the ability to get to work, to the grocery store, to school, and to access care needed. Figure 18 shows the percent of households with no vehicle in the Solano County HSA.
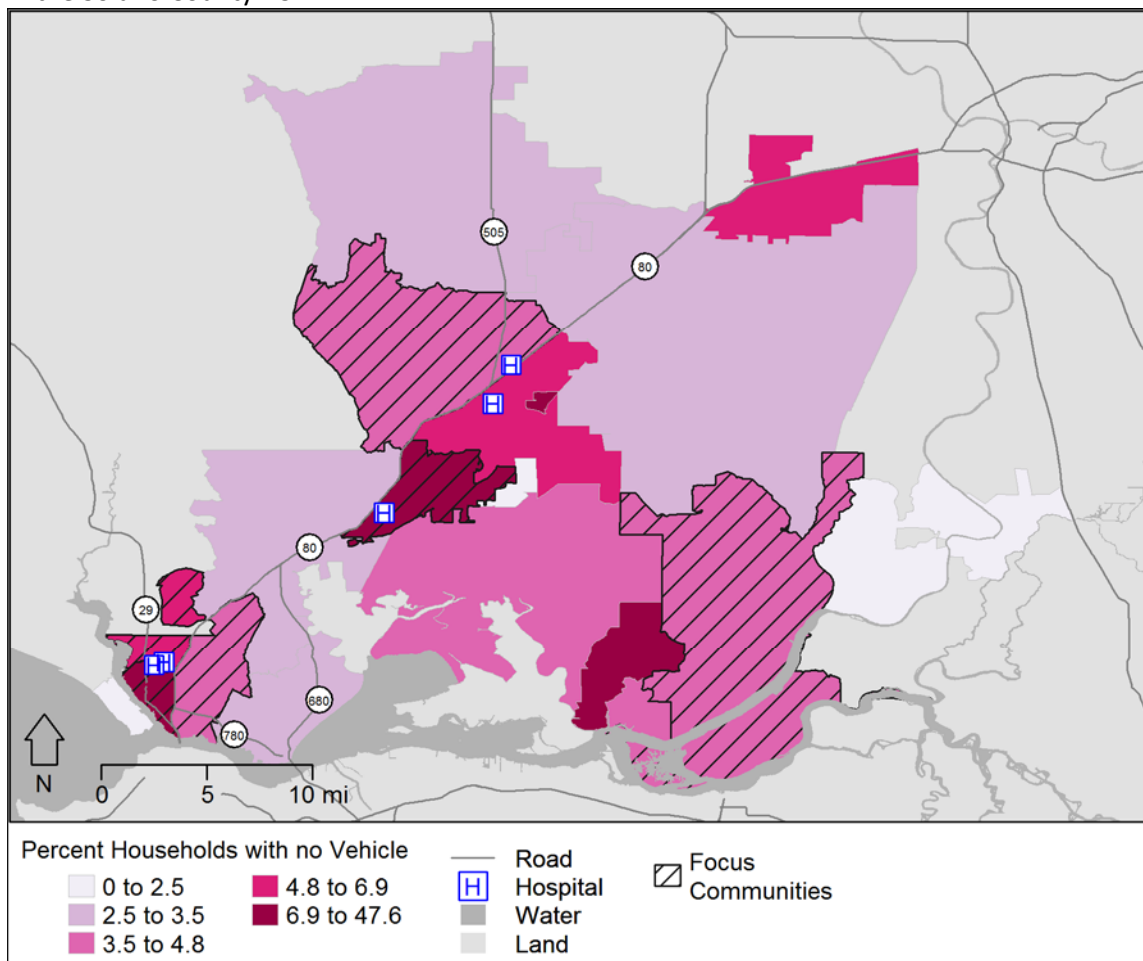
Figure 18: Percent households with no vehicle
Source: 2013 American Community Survey, 5-year estimates

As Figure 18 shows, many ZIP codes in Solano County have a high percent of households with no vehicle. The ZIP code of 94512 (Birds Landing) had the highest percent at 47.6%, followed by ZIP codes 94589 (North Vallejo), 94590 (South/Central Vallejo), 94533 (East Fairfield) and 95625 (Elmira). The percent of households with no vehicle for the state was 7.8% and in Solano County was 5.6%.

Lack of safe and affordable transportation was mentioned as a significant barrier for Solano County HSA residents. Transportation was mentioned as a barrier to accessing health care services, healthy and quality foods and employment. Participants stated that the current public transportation system in the HSA can be very expensive, hard to access and at many times, unreliable. Participants mentioned that the public transportation system does not exist in many of their communities or to the extent and scale needed for them to access services. One key informant said, "*I think transportation is a big issue. For example, one of our major resources is out on Mare Island and the bus system doesn't really go out to Mare Island*" (KI_9).

Community members discussed challenges of accessing services with unreliable transportation. One key informant said, *"Transportation always comes up as a really big issue around getting to work, getting to hospital appointments. That's a huge deal" (KI_2).* Another key informant interviewee said:

> *We have the worst public transportation for the people that are trying to get around by bus, whether they are homeless, whether they are individuals that are living in poverty and don't have a car, but they need to get to work. Buses do not run enough on their routes in order to transport the people that need to get where they need to get (KI_6).*

Another key informant mentioned the transportation barriers in Solano County and connected it back to poverty:

> *I think poverty is the biggest barrier and I think we've designed our county to require a car. And so, if you don't have one, you really can't get access to services. So, I think poverty is the driver for that...I think transportation therefore is an issue. I think distribution of necessary resources is poor (KI_1).*

Community members expressed concern that bus schedules were too infrequent to support residents in keeping their doctor's appointments. In order to make an appointment at a clinic in Vacaville or Fairfield in the afternoon, many residents mentioned leaving in the morning to make the appointment, making it an all-day process. One key informant talked about transportation issues in Rio Vista: *"The bus only comes here twice a day. It comes at nine in the morning and one in the afternoon. So if you are in Rio Vista and you want to come here* [Fairfield], *you just don't" (KI_1).*

Many other participants shared that transportation is needed to get almost anywhere in Solano County, which can be economically challenging. Community members voiced concerns over the transportation infrastructure in Solano County. One key informant stated:

> *Solano County has adequate but not excellent transportation infrastructure. People have a lot of trouble getting, again I am speaking to MediCal beneficiaries not people that own cars, they have trouble getting to their services. They often can't get there or they are late and then they are excluded from their visits. So there's that lack of infrastructure for that particular population…(KI_4).*

Long commute times are associated with increased likelihood of being overweight, higher blood pressure, increased stress and neck pain, exposure to more pollution, and other negative health effects.[24] Figure 19 displays the percent of workers in each ZIP code which commute more than 60 minutes to work.
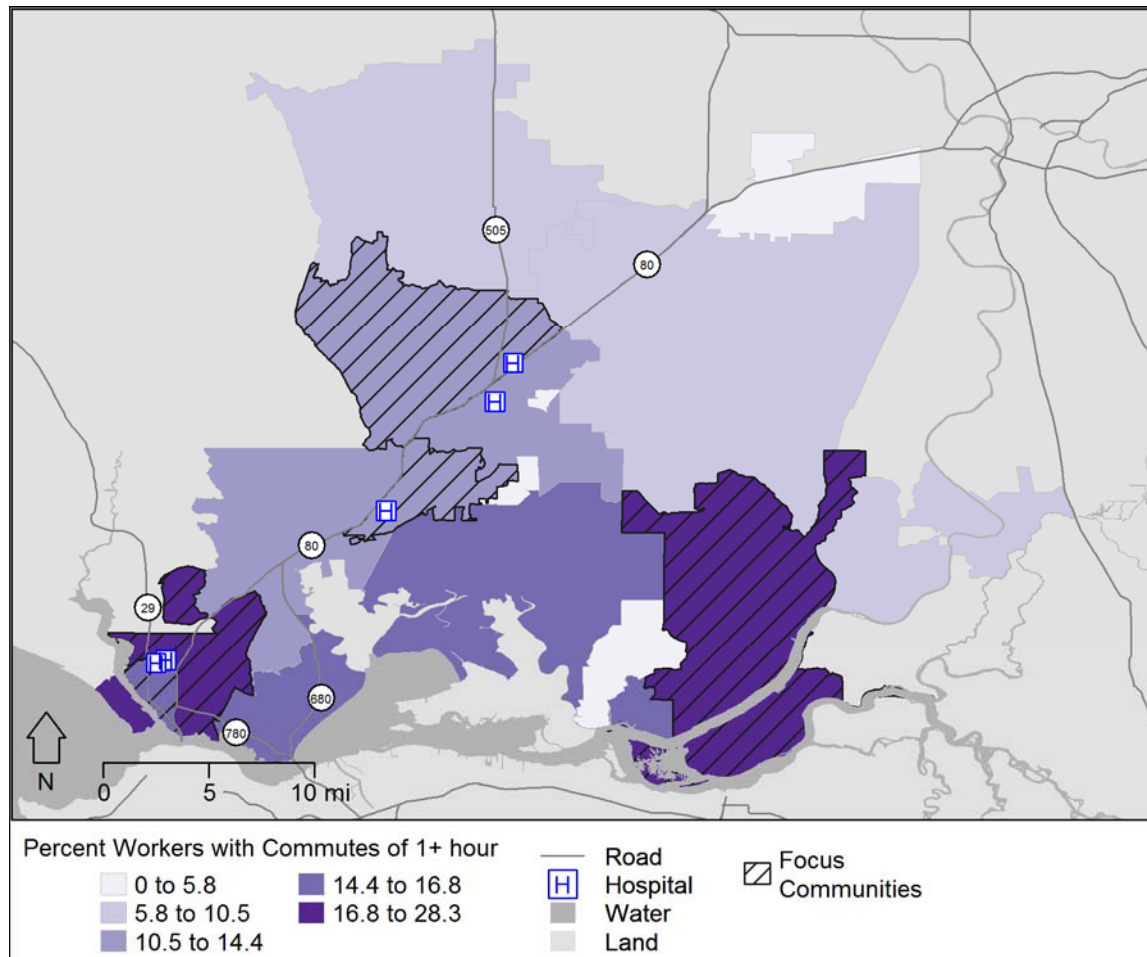
Figure 19: Percent workers with commutes of 1+ hour
Source: 2013 American Community Survey, 5-year estimates

Many ZIP codes in Solano County had a high percentage of residents commuting more than 60 minutes to work. ZIP codes 94571 (Rio Vista) and 94592 (Mare Island) were in the highest percent range of residents commuting more than 60 minutes, followed by ZIP codes 94591 (East Vallejo) and 94589 (North Vallejo), 94585 (Suisun City), 94510 (Benicia) and 94533 (East Fairfield) which were higher than the county benchmark of 13.9% of residents commuting more than 60 minutes to work.

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[24] MacMillan, A. (2015). Five ways your commute is hurting your health. Retrieved from: http://news.health.com/2015/03/31/5-ways-your-commute-is-hurting-your-health/

Percent -- Workers reporting commuting alone and walking/biking to work

Data from the US Census Bureau indicated that 75.0% of respondents in the HSA over the age of 16 years old reported commuting to work alone, higher than the state percent (73.0%). The Census data also indicated that 3.7% of HSA respondents stated that they walk or bike to work, just below the state percent of 3.8%.
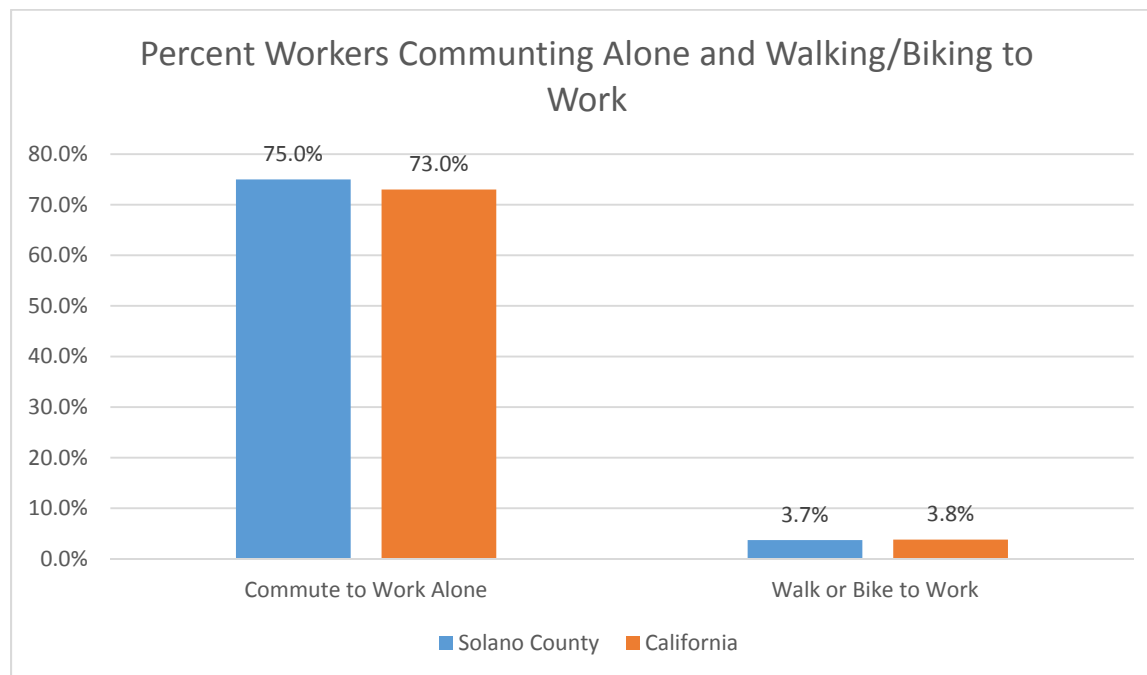
Figure 20: Percent of workers commuting to work alone and walking or biking to work
Source: US Census Bureau, 2009 - 2013

Rate -- Road density network per square mile

Examination of road network density revealed that Solano County has more roads per square mile than the state. The number of roads per square mile for Solano County is 2.81 compared to the state rate of 2.02 roads per square mile. Increased road density is related to increased exposure to vehicle emissions and other environmental pollutants which negatively impact health.

Area -- Fatal traffic accidents

ZIP code 94510 (Benicia) had eight fatal traffic accidents, the highest number of fatal traffic accidents compared to all other ZIP codes in the HSA in 2013, followed by 95688 (West Vacaville) at five accidents. The majority of the fatal traffic accidents in Solano County appear to be on the major highways. For 94510 (Benicia) the traffic accidents appear to be on Highway 680 and Highway 780.

Rate-- Fatal accidents per 100,000 population involving a motor vehicle and/or pedestrian

The rate of fatal motor vehicle accidents for 2010-2012, as reported by the California Department of Public Health, showed that the Solano County HSA rate (3.23 per 100,000) of fatal accidents was below the state rate (5.18 per 100,000). In addition, fatal accidents involving a pedestrian (motor vehicle killed a pedestrian) showed that the Solano County rate (0.90 per 100,000) was also below the state rate (1.97 per 100,000).
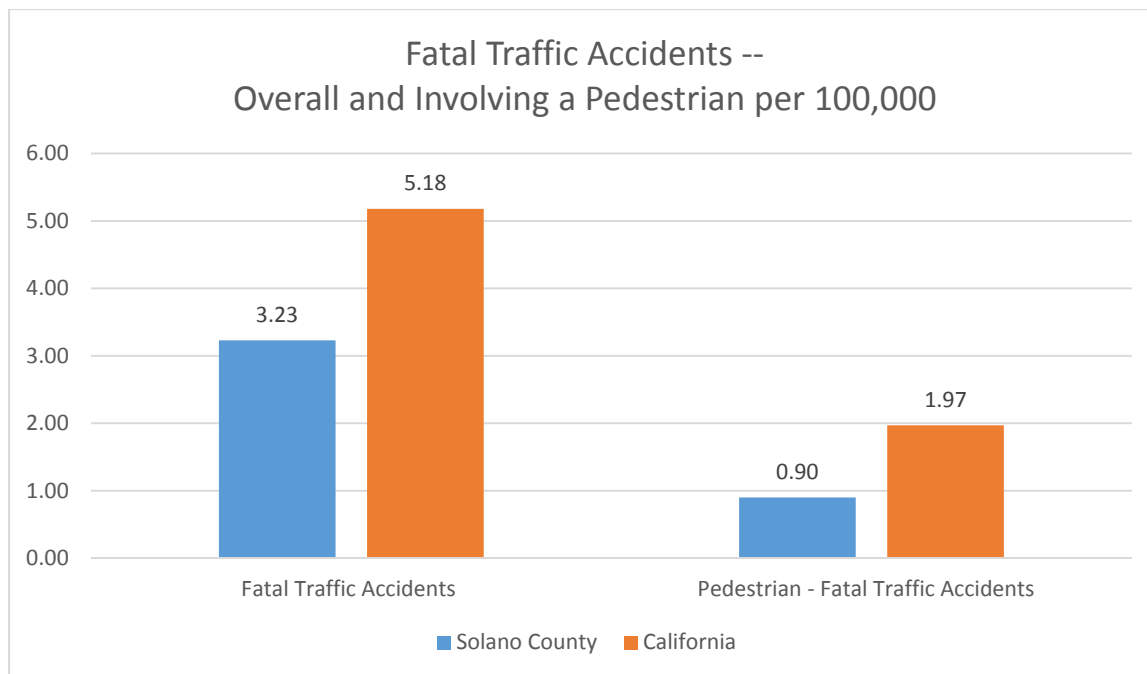
Figure 21: Rate of fatal accidents overall and involving a pedestrian
Source: CDPH, 2010 – 2012

Housing Stability – Percent housing vacancy, people per housing unit and percent renting

Stable, clean and affordable housing is an essential public health need. The lack of a stable place to live can have negative health effects on individuals and families, making it hard to manage daily life responsibilities.[25] Table 27 shows rates for various indicators of housing stability by ZIP code for Solano County.

Table 27: 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
94510	6.4	2.54	31.1
94512	0.0	2.75	47.6
94533*	7.5	3.04	48.6
94534	2.3	2.87	24.1
94535	10.0	3.50	99.0
94571*	10.6	2.09	28.9
94585	4.3	3.22	33.8
94589*	8.9	3.18	37.5
94590*	16.2	2.51	56.2
94591*	9.8	2.92	32.1
94592	16.3	2.61	5.6
95690	20.4	2.73	36.4
95694	2.5	2.86	41.8
95618	4.6	2.85	43.2
95620	6.6	3.08	37.1
95625	0.0	3.24	86.2
95687	5.2	2.73	38.4
95688*	5.6	2.79	32.5
Solano County	7.6	2.85	38.3
CA State	8.6	2.94	44.7

Source: 2013 American Community Survey, 5-year estimates
*Indicates Focus Community

The largest percent of housing vacancies were in 95690 (Walnut Grove), followed by 94592 (Mare Island) and 94590 (South/Central Vallejo). High vacancy rates are indicators of housing market conditions[26], specifically the affordability of housing in the area. The number of people per housing unit is an indicator of multiple people living together, which can be an indicator of poverty. The highest people-per-housing unit rates were seen in ZIP codes 94533 (East Fairfield), 94535 (Travis AFB), 94585 (Suisun City), 94589 (North Vallejo), 94591 (East Vallejo), 95620 (Dixon) and 95625 (Elmira). Also, a large number of renters in a given geographical area can be an indicator of the area's economic stability as well as housing costs. ZIP code 94535 (Travis AFB) and 95625 (Elmira) had the highest rate of renters in the Solano County HSA renting at 99.0% and 86.2% respectively. These were both far above county and

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[25] John Hopkins University. (2016). Stable Housing. Retrieved from: http://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-to-eliminate-cardiovascular-health-disparities/about/influences_on_health/stable_housing.html
[26] Belsky, E.S. (n.d.) *Vacancy rates: A policy primer*. Housing Policy Debate, vol 3(I3), 793-814. Retrieved from: http://content.knowledgeplex.org/kp2/img/cache/kp/2627.pdf

state benchmarks. It should be noted that ZIP code 94535 (Travis AFB) is a unique geographical location given the housing provisions for military personnel and their families.

Primary data participants spoke about the housing insecurity and the high cost of housing in areas throughout the Solano County HSA. As one key informant stated, *"I think affordable housing is a big issue and it's getting worse and people are putting most of their money towards housing so they can't buy food" (KI_9).* Another key informant stated:

> *"So for our low income families, we have a lot of families that are homeless or rooming with another family because they can't afford the rent. We had a meeting with the Housing Office last week and they did explain that for a 1 bedroom in Vacaville, it could be $1,000, so it's really, really hard for families" (KI_7).*

A focus group interviewee discussed rent increases having an impact on some populations. As one community member stated:

> *"Rents are going up and folks can't afford where they used to stay. We're seeing a lot of folks with housing problems leaving Vallejo…moving to Fairfield and further north. Clients who are needing services are being pushed out of the community" (FG_1).*

Key informants and community members talked about the full and long waiting lists to access affordable housing in Solano County. One community member stated:

> *"I've been on the waiting list to get affordable housing for 2 years now and I'm still waiting. And I'm basically disabled...I'm still waiting, even though I'm labeled as disabled and I got that extra point up. I'm not the only disabled person who's trying to get that affordable housing and housing is just going up, like ridiculous" (FG_4).*

Rate -- Households that are HUD households per 10,000 housing units
The United States Department of Housing and Urban Development (HUD) reports in 2013 that the total number of HUD funded housing units in Solano County is 467.13 units per 10,000 housing units, above the state rate of 368.32 units per 10,000. This is an important indicator, as access to affordable housing impacts a person's economic stability and ability to access other basic needs such as health care, affordable healthy foods, and places to be physically active.

Percent -- Households with at least one substandard housing condition
HUD also reports that, in 2013, the percent of households defined as substandard was 44.5% in Solano County, lower than the state percent at 48.4% of households.

The high cost of housing can be a barrier for community members to maintain stable housing and optimal health. Data on the cost of housing for the Solano County HSA shows the percent of homeowners and renters with housing expenses and gross rent greater than 30% of income. Figure 22 shows the indicator across the HSA.
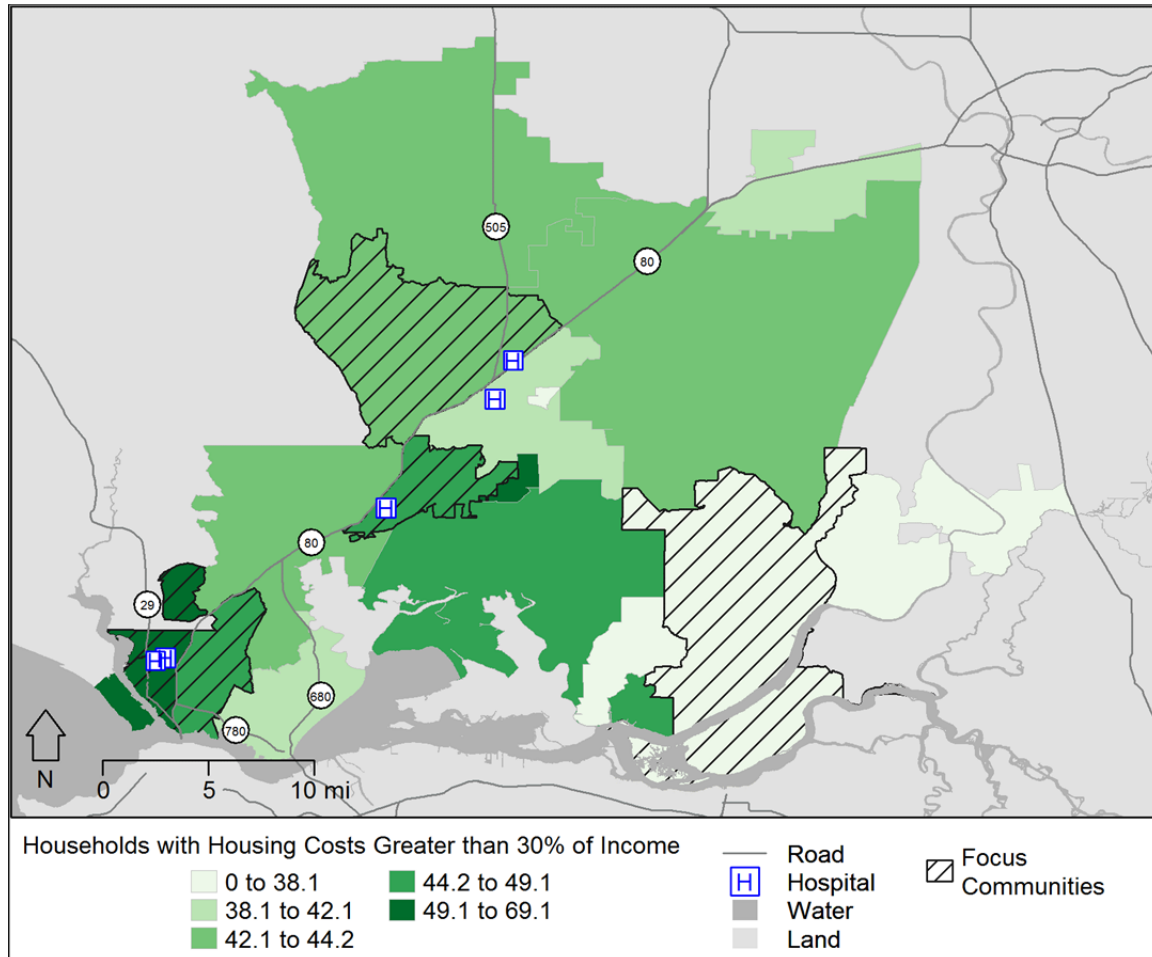
Figure 22: Percent of households with housing costs greater than 30% of income
Source: 2013 American Community Survey, 5-year estimates

Four of the 18 ZIP codes in Solano County fell into the category of having the highest percentage of residents with household costs greater than 30% of income. This category ranged from 49.1% to 69.1% and included the following ZIP codes: 94535 (Travis AFB), 94589 (North Vallejo), 94590 (South/Central Vallejo) and 94592 (Mare Island). ZIP code 94535 (Travis AFB) is a unique geographical location given the housing provisions for military personnel and their families.

Index -- 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*.[27] This tool was designed to identify California communities that are disproportionately burdened by multiple sources of pollution. The tool combines 13 types of pollution and environmental factors to produce a "pollution burden" score for each census tract in the state ranging between a minimum of 0 and a maximum of 100, with higher scores indicating a greater pollution burden. The pollution factors included ozone and $PM_{2.5}$ concentrations, diesel PM emissions, pesticide use, toxic releases from facilities, traffic density, drinking water contaminants, cleanup sites, impaired water bodies, 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 Solano County HSA and is displayed in Figure 23. Each census tract's pollution burden score ranged from 0 to 100 and was assigned to a quintile, displayed in the figure using color gradation. In the figure census tracts with darker colors have higher pollution burden scores.
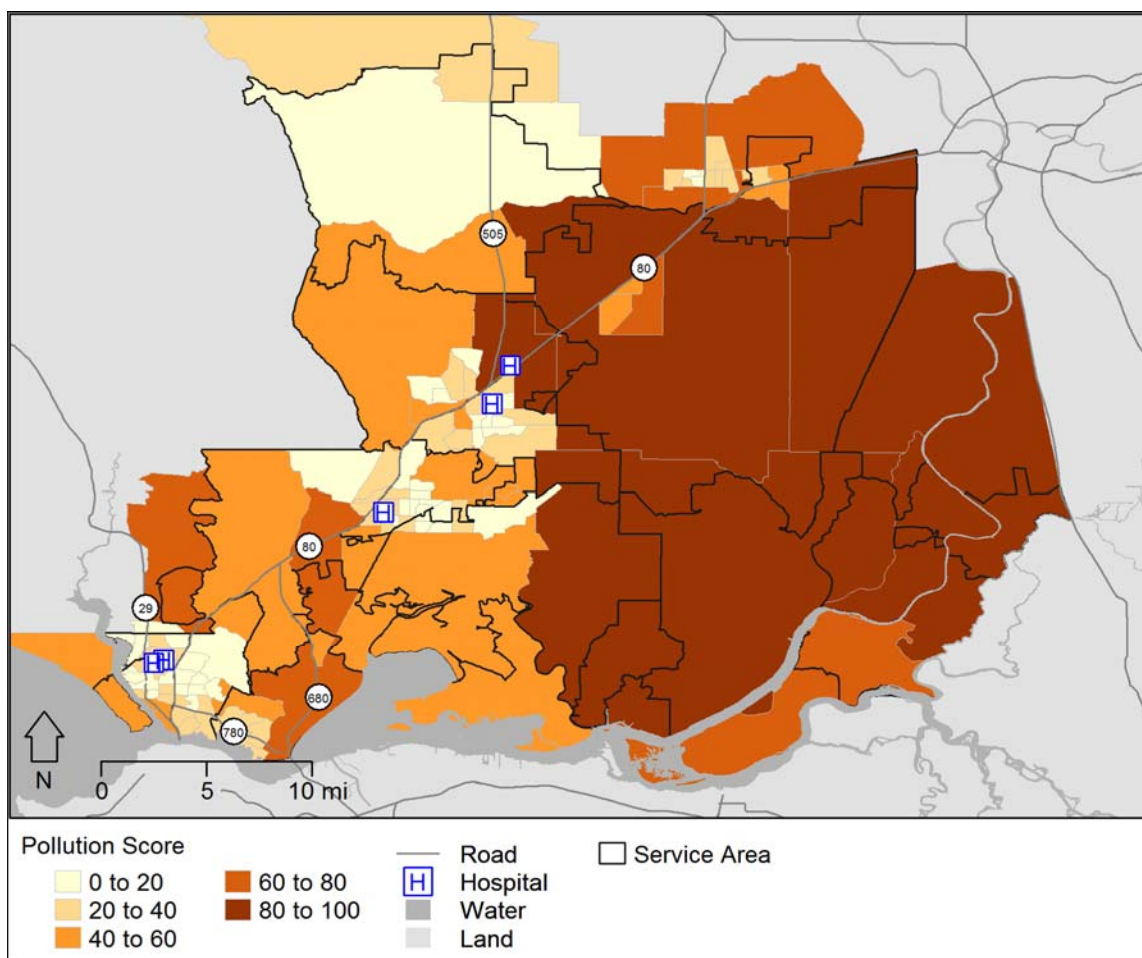
Figure 23: Pollution burden score by census tracts in the HSA
Source: California Office of Environmental Health Hazard Assessment, 2014

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[27] *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

Figure 23 shows that a majority of the following ZIP codes had a pollution burden score in the highest quintile, 80-100: 94512(Birds Landing), 94571 (Rio Vista) and 95620 (Dixon). Portions of ZIP codes 94585 (Suisun City) and 95687 (East Vacaville) had census tracts with scores in the second highest quintiles.

The effect of exposure to pollution contributes to the high rates of respiratory illness. Primary data participants mentioned concerns with pesticides sprayed on crops and particles drifting through the air causing asthma and allergies. One community member mentioned, *"on Sundays at 7am, there was a plane spraying a field very close to us with what seemed to be chemicals" (FG_2).*

Social Environment
This assessment included indicators for crime, assault and homicide in the Solano County HSA. Crime data included major crimes, violent crime, property crime, arson and domestic violence.

Rates -- Major crime, violent crime, property crime, arson and domestic violence
Criminal activity in a community has a strong effect on a community's actual and perceived safety. Data on major crimes reported to the California Department of Justice are provided for the law enforcement jurisdictions in the Solano County HSA and compared to an estimated county benchmark.

Table 28: Major crime, violent crime, property crime, arson and domestic violence per 10,000 population by police jurisdiction

Police Municipality	Major Crimes*	Violent Crime	Property Crime	Arson	Domestic Violence
Benicia	154.64	11.02	140.68	2.94	26.81
Dixon	241.31	18.89	221.87	0.54	24.83
Fairfield	380.35	46.75	331.73	1.88	66.74
Rio Vista	374.45	42.95	328.81	2.68	33.55
Suisun	245.50	22.57	222.22	0.71	20.11
Vacaville	248.45	21.58	225.04	1.83	39.08
Vallejo	581.40	87.04	489.75	4.61	41.00
Solano County Sheriff	333.88	64.35	263.73	5.80	33.76
Solano	375.04	47.96	324.33	2.76	43.62
CA State	312.65	40.26	270.41	1.98	40.18

Source: California Department of Justice, 2013
*combination of violent crimes, property crimes, and arson

Table 28 indicates that major crime rates reported for both Fairfield and Vallejo jurisdictions were noticeably higher than the Solano County estimated major crime rate. Vallejo also had the highest violent crime rate. Rates of property crime were highest in the Fairfield, Rio Vista, and Vallejo jurisdictions. The Solano County Sheriff jurisdiction includes the unincorporated parts of Solano County. The highest rate of arson was found in the unincorporated areas of Solano County where the Solano County Sheriff's Office patrols. Rates for domestic violence crimes in Fairfield and Vallejo were higher than the state benchmark.

In the Solano County HSA, gang violence, gun violence, domestic violence and drug use were mentioned most often as making communities feel unsafe and non-walkable. Primary data participants suggested

that pockets of Vacaville, Fairfield and Vallejo experienced the most violence. Interviewees spoke about what the impact of witnessing violence has on residents, resulting in a feeling of trauma. One community member stated, *"Fourth of July, we don't hear fireworks, we hear gun shots. Right down where I live…I know somebody who got shot there" (FG_3).* Another community member stated:

> *You are just walking around with a badge that says rest in peace and to them, especially the males, they don't know how to cope with it. They rather hold it in and so it all just bottles up and then next thing you know, they're going to do something that's just hard to turn back from…the doctor told me that I had PTSD because of the fact that I've been seeing probably over 15 people die in front of me (FG_4).*

Key informant and community members mentioned the lack of rapport and understanding between the community members and police officers. The transgender community expressed concern over violence that's often times directed at the LGBTQ community. One community member mentioned,

> *It's a death sentence for me because then you're just a man in a dress. That's why there's been 27 homicides against transgender women this year. I got attacked and fractured my neck. I've been discriminated against in the hospital. They kept referring to me as sir and that's dangerous to me (FG_6).*

Primary data participants also expressed concern about the safety of the parks in Solano County; the perception that there were a lot of persons experiencing homelessness, active drug users and gang activity, even during the day. One key informant interviewee said, *"There are some drug dealings and it's just one of those facades that you see…it looks great during the day, but at night, everything comes out" (KI_11).*

Rates -- ED visits and Hospitalizations due to assault

Understanding safety in Solano County requires the examination of both crime rates as shown above as well as incidents of intentional harm, such as rates of assault. Rates of assault (intentionally harming another person) are included in this assessment to gain an understanding of violence in the Solano County HSA. Figures 24 and 25 show ED visits and hospitalizations related to assault in the area.
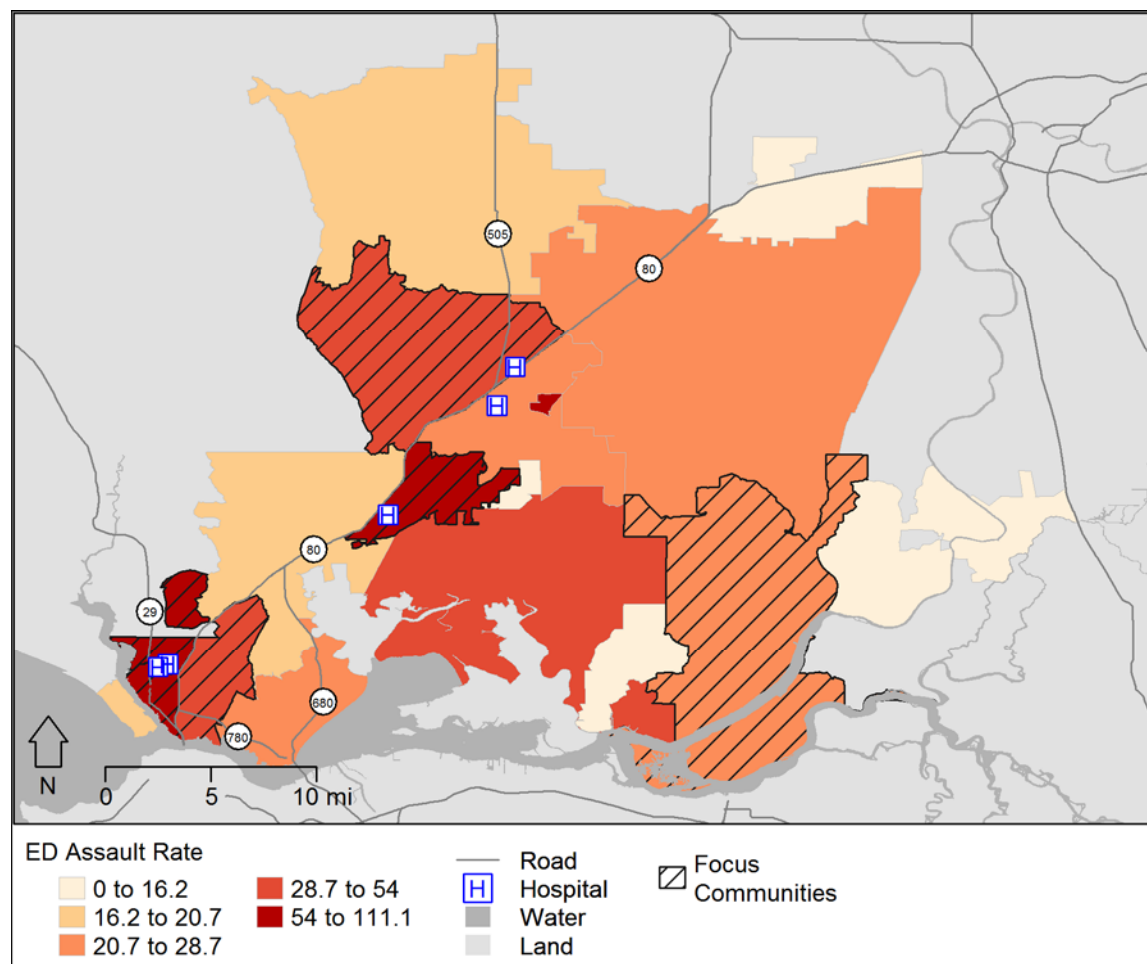
Figure 24: ED visits related to assault
Source: OSHPD, 2012

Rates of ED visits due to assault were elevated in seven of the 18 ZIP codes in Solano County compared to the county benchmark (44.29 per 10,000) and state benchmark (30.36 per 10,000). ZIP codes 94533 (East Fairfield), 94589 (North Vallejo), 94590 (South/Central Vallejo) and 95625 (Elmira) had the highest rates of ED visits in Solano County ranging from 60.30 visits to 111.10 visits per 10,000. Data by race and ethnicity showed that Whites had a rate of 38.99 per 10,000, compared to Hispanics at 34.87, Native Americans at 44.81, Asian/Pacific Islander at 12.26, and Blacks at 114.37 ED per 10,000 population.
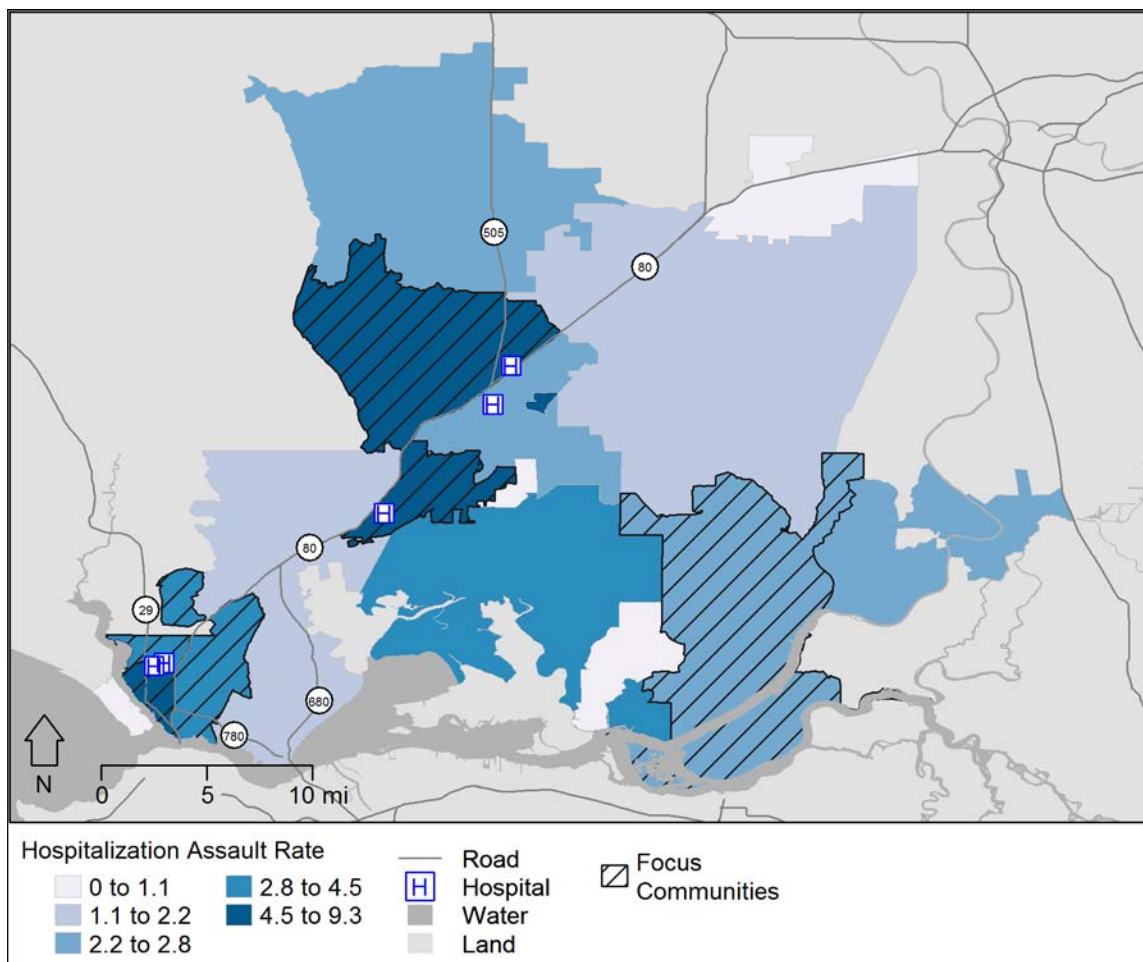
Figure 25: Hospitalization related to assault
Source: OSPHD, 2012

Six out of 18 ZIP codes in Solano County had high rates of hospitalizations due to assault. ZIP code 94590 (South/Central Vallejo) had the highest rate of hospitalizations at 9.22 hospitalizations per 10,000 population, more than twice the county rate (4.02 per 10,000) and three times the state rate (3.88 per 10,000). Data by race and ethnicity showed that Whites had a rate of 2.25 per 10,000, compared to Hispanics at 4.76, Native Americans at 4.99, Asian/Pacific Islander at 1.10, and Blacks at 10.36 per 10,000 population. Hospitalizations due to assault where four times higher in the Black population compared to the White population.

Rate -- Mortality due to homicide (age-adjusted)
Data from the California Department of Public Health on mortality due to homicide collected for 2010-2012 revealed that the Solano County HSA (8.10 per 100,000) had a higher rate than the state benchmark (5.15 per 100,000).

Economic & Work Environment
Economic stability is crucial to overall health and wellbeing. Community members that struggle to pay for basic needs like stable housing, adequate food, and health care are at greater risk of negative health outcomes. This assessment examined indicators related to lack of employment, income, poverty and insurance status.

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Table 29: Percent Unemployed and median income by ZIP code

	ZIP Code	Percent Unemployed	Median Income
Economic Stability	94510	7.8	$88,930
	94512	0.0	$142,885
	94533*	13.2	$55,413
	94534	6.4	$92,676
	94535	11.6	$50,970
	94571*	24.1	$54,223
	94585	10.5	$70,374
	94589*	17.1	$56,068
	94590*	19.0	$41,819
	94591*	13.7	$73,509
	94592	16.3	$105,352
	95690	18.1	$61,150
	95694	8.1	$55,163
	95618	7.2	$82,313
	95620	10.5	$71,261
	95625	0.0	$75,114
	95687	9.4	$73,583
	95688*	10.5	$79,452
	Solano County	12.1	$67,177
	CA State	11.5	$61,094

Source: Census, 2013
Indicates Focus Community

As Table 29 shows, unemployment rates in the Solano County HSA were highest in ZIP codes 94571 (Rio Vista) at 24.1% and 94590 (South/Central Vallejo) at 19.0% both clearly over the Solano County percent of 12.1% and state percent of 11.5%. Seven ZIP codes had median incomes below that of the county. The lowest median incomes were seen in ZIP codes 94590 (South/Central Vallejo) and 94535 (Travis AFB).

Percent -- Population living in poverty, families with children, single female headed households, and elderly households

Table 30: Percent populations living in poverty, percent families with children in poverty, percent single FHH in poverty, and percent elderly households in poverty

	ZIP Code	Percent Under 100% Federal Poverty Level	Percent Families with Children in Poverty	Percent Single Female Headed Households (FHH) in Poverty	Percent Elderly Households in Poverty
Poverty	94510	5.7	7.3	24.1	1.3
	94512	0.0	0.0	0.0	0
	94533*	17.9	21.1	38.6	2.51
	94534	5.4	6.2	23.6	0.8
	94535	12.7	14.0	52.7	0
	94571*	10.9	8.4	43.7	2.48
	94585	13.4	14.9	32.3	0.47
	94589*	17.7	21.6	34.5	2.74
	94590*	25.0	29.0	41.6	3.53
	94591*	12.5	16.6	35.3	1.5
	94592	6.0	11.1	100.0	0
	95690	14.0	15.3	0.0	1.21
	95694	10.7	14.0	14.7	2.11
	95618	18.8	7.0	24.0	1.24
	95620	11.2	14.2	40.3	1.48
	95625	11.7	0.0	0.0	0
	95687	9.1	10.3	26.0	1.44
	95688*	10.1	12.4	37.3	1.53
	Solano County	13.0	15.4	34.2	1.8
	CA State	15.9	17.8	36.8	2.26

Source: Census, 2013
*Indicates Focus Community

Six of the 18 ZIP codes had a higher percent of the population living under the 100% poverty level, relative to the county benchmark. ZIP code 94590 (South/Central Vallejo) had a rate that was drastically higher than the county and state benchmarks. ZIP codes with the highest percentage of children living in poverty were seen in 94533 (East Fairfield), 94589 (North Vallejo), 94590 (South/Central Vallejo) and 94591 (East Vallejo), with ZIP code 94589 (North Vallejo) having the highest percentage (21.6%) in Solano County. ZIP code 94590 (South/Central Vallejo), had the highest rate of female-headed households and elderly households in poverty in the entire Solano County HSA.

Many key informants and community members spoke about poverty and its influence in many areas of healthy living, affecting access to quality health care, healthy foods, transportation, stable housing etc. As one community member stated *"There's kind of like a cycle of poverty because there's not a lot of resources, so people grow up and they don't have the resources so they end up being poor again" (FG_3).*

A key informant interviewee mentioned the impact of where you live or how your surroundings can impact your quality of life. The key informant said, "q*uality of life, it is affected by healthy choices, it is affected by dealing with poverty, dealing with…having to go to schools that are not as good as schools in wealthier areas" (KI_5).*

Percent -- Population uninsured
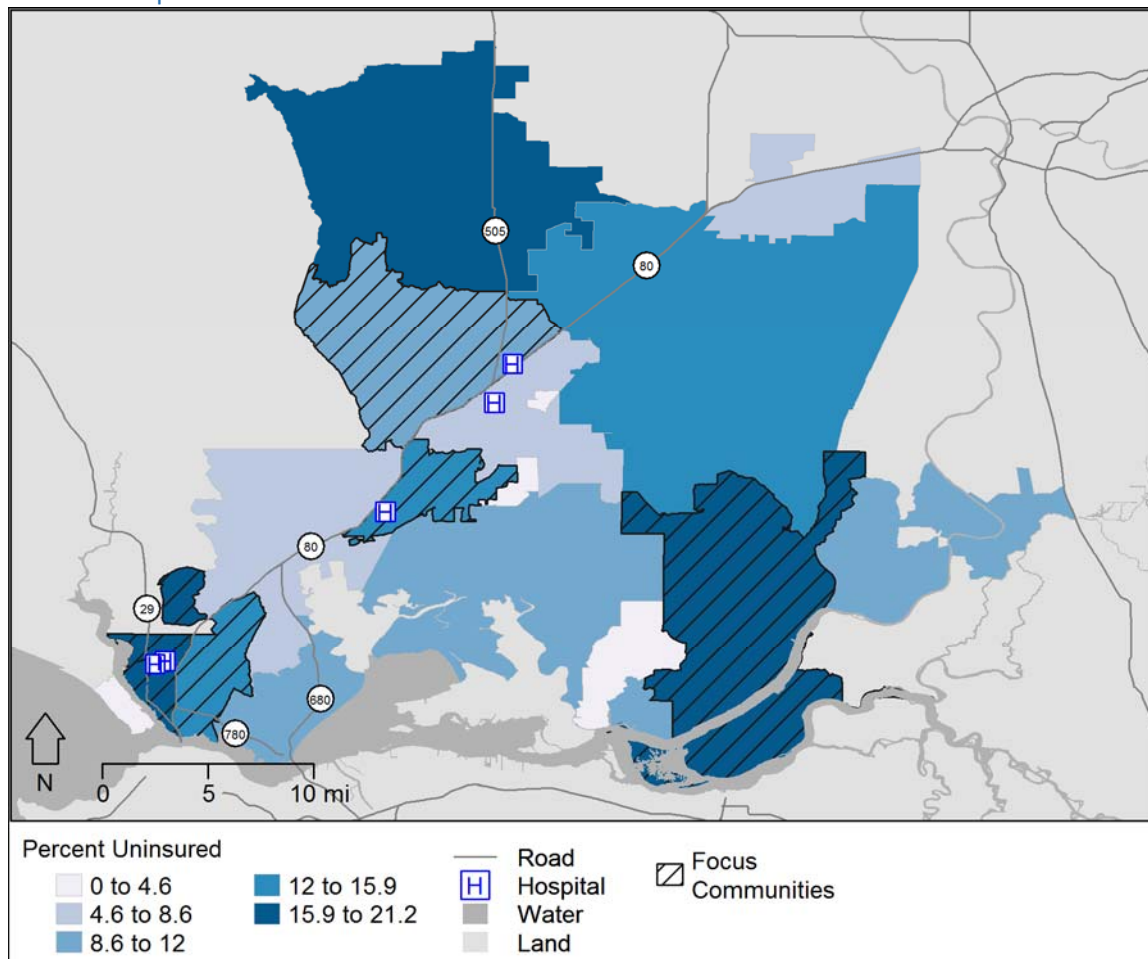
Figure 26: Percent uninsured by ZIP code in the HSA
Source: US Census Bureau, 2009 - 2013

According to the US Census Bureau, American Community Survey (2009-2013), the percent of population without insurance for Solano County was 12.5% while the state level was 17.8%. Six of the 18 Solano County ZIP codes had a larger percent of population that was uninsured compared to the county and state benchmarks. The highest percentages were found in ZIP codes 94571 (Rio Vista) and 94589 (North Vallejo) and 94590 (South/Central Vallejo).

Service Environment
This assessment examined access to care measures and education in order to best understand the service environment for the Solano County HSA. Information in this section of the report examine access to care for primary care, mental health care and dental health.

Access to care (Primary Care, Mental Health, and Dental)

Rate -- Primary care physicians per 100,000 population

Data from the US Department of Health and Human Services revealed that the rate of primary care physicians per 100,000 population was 77.70 for Solano County in 2012, barely above the state rate of 77.20.

Area -- Health Professional Shortage Area -- Primary Care

Health Professional Shortage Areas (HPSAs) are designated by the US Government Health Resources and Services Administration (HRSA) as having shortages of primary medical, dental, or mental health providers; these shortages may be geographic (e.g., a county or service area), demographic (e.g., a low income population) or institutional (e.g., comprehensive health center, federally qualified health center, or other public facility).[28]
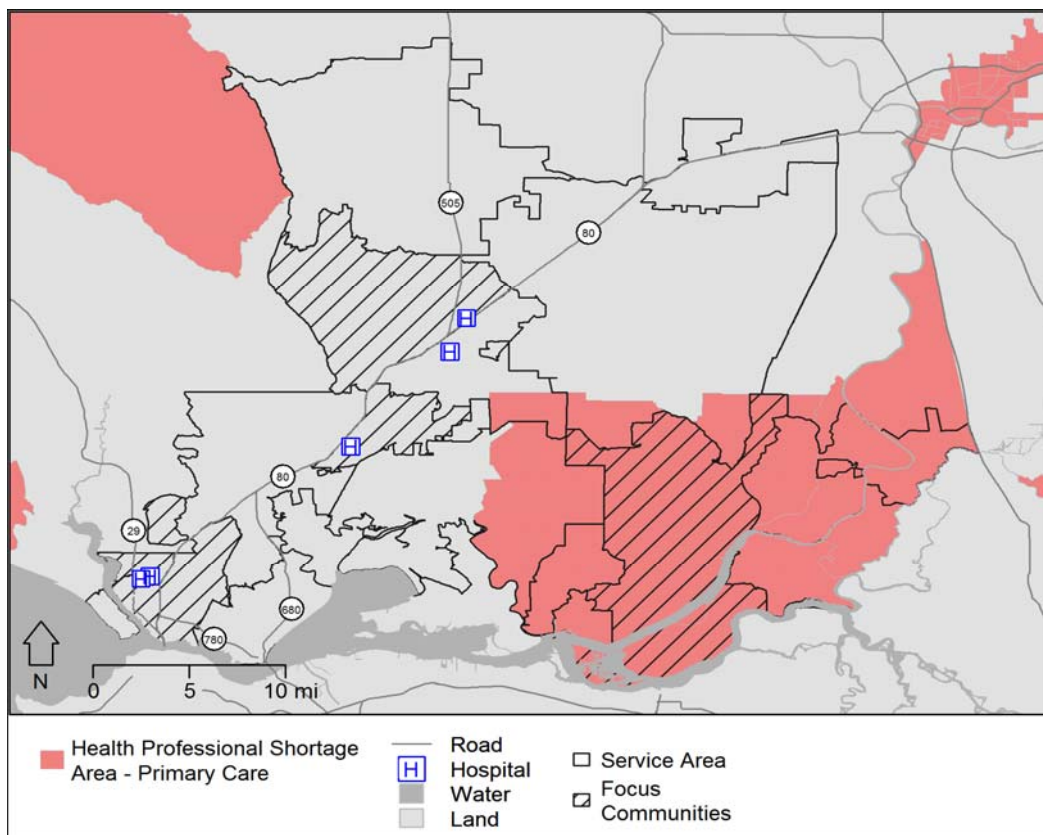
Figure 27: Primary care HPSA in the HSA
Source: Health Resources and Services Administration, 2015

Solano County ZIP codes 94512 (Birds Landing), 94535 (Travis AFB), 94571 (Rio Vista), 94585 (Suisun City), 95690 (Walnut Grove), 95694 (Winters), 95620 (Dixon) and 95687 (East Vacaville) all had portions of their ZIP codes that were designed HPSA for Primary Care.

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[28] Health Resources and Services Administration. (n.d.). *Primary Medical Care HPSA: Designation Overview*. Retrieved from: http://bhpr.hrsa.gov/shortage/hpsas/designationcriteria/primarycarehpsaoverview.html

One of the biggest findings of the primary data was the need for increased access to primary care for residents of Solano County HSA. Community members expressed concern over the lack of access to health care providers, especially Medi-Cal providers. Primary data also indicated that many community residents experienced long wait times to see a provider. One community member discussed the challenges with understanding the health care system and the need for more education *"I don't understand the system…I need to learn about the system. I don't understand anything about the system" (FG_5).* One service provider mentioned a concern that is often seen with her clients. It was stated:

> *The requirement of presenting a picture ID to go to doctor's appointment, so that is a challenge…a lot of our clients do not have the ID that is required and so it might be that once they're there at that appointment, they might be seen even if they don't have the ID, but when they're told on the phone that they need to present an ID, that discourages them to keep that appointment or even make the appointment because they don't have the ID" (KI_7).*

Key informants and community members shared that there's a lack of culturally competent health care providers in their communities. One key informant stated, *"the Spanish speaking providers are called Unicorns because you can never find them" (KI_7).* One focus group interviewee said, *"what is needed is training and cultural competency for all staff. Yes, education training, compassion, and understanding is needed because right now there is a lack of those things" (FG_6).*

Percent -- Prenatal care in the 1st trimester and low birth weight

Prenatal care during the first trimester has been linked to improved health outcomes of pregnancy for both mothers and infants. The most significant benefits of early and ongoing prenatal care include healthy birth weight and decreased risk of preterm delivery[29].

Table 31: Percent of live births with the mother receiving prenatal care in the 1st trimester and percent of births with low birth weight

	ZIP Code	Percent of Live Births with Prenatal Care in 1st Trimester	Percent of Births with Low Birth Weight
Prenatal Health	94510	86.6	6.1
	94512	N/A	0.0
	94533*	69.4	6.9
	94534	83.4	7.1
	94535	78.0	6.7
	94571*	78.2	6.7
	94585	77.2	6.3
	94589*	77.2	7.9
	94590*	76.2	7.8
	94591*	81.3	7.0
	94592	N/A	0.0
	95690	77.7	6.7
	95694	81.1	6.0
	95618	86.8	6.2
	95620	79.9	5.5
	95625	N/A	0.0
	95687	77.8	6.2
	95688*	77.2	6.1
	Solano County	77.8	6.7
	CA State	83.6	6.8

Source: CDPH, 2010-2012
*Indicates Focus Community

Data revealed that 13 Solano County ZIP codes had lower percentages of mothers who received prenatal care in the first trimester compared to the state percentage. The ZIP code with the lowest percent of mothers receiving prenatal care in the first trimester was 94533 (East Fairfield). Additionally, ten ZIP codes had higher percentages of low birth weight babies compared to the county benchmark. The ZIP code with the highest percent of low birth weight babies was 94589 (North Vallejo), followed by 94590 (South/Central Vallejo).

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[29] Human Resources and Services Administration (n.d.) Prenatal – First Trimester Care Access. Retrieved from: http://www.hrsa.gov/quality/toolbox/measures/prenatalfirsttrimester/

Percentage – Early entry to prenatal care by birth year and payor source

Figure 28 displays the percentage of women in Solano County who used public or private insurance for prenatal care during their first trimester from 2007 – 2015.
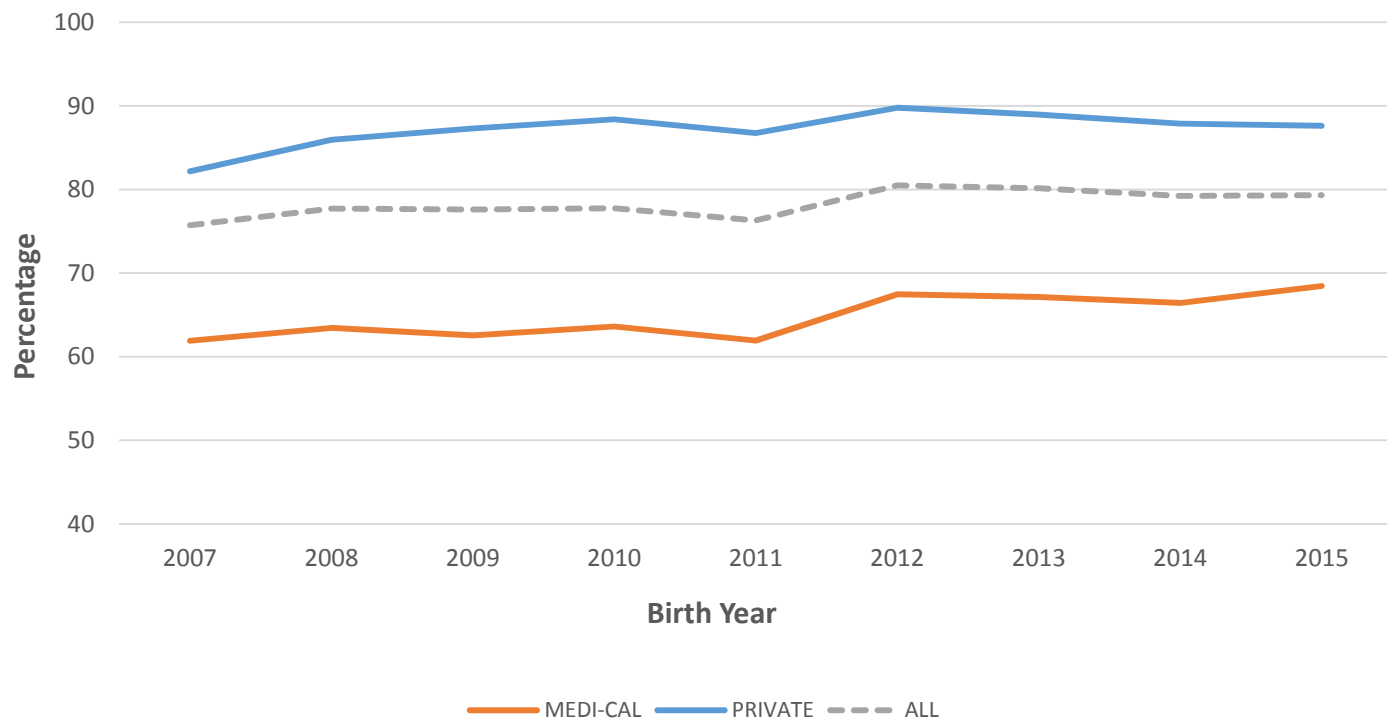
Figure 28: Early entry to prenatal care by birth year and payor source
Source: Solano County Public Health Department, 2007 – 2015

On average, women with Medi-Cal insurance had 34% lower early entry to prenatal care compared to women with private insurance in the past 9 years. Rates by race and ethnicity showed that on average over the last nine years, 82% of Whites had prenatal care during the first trimester, compared to 75% of Blacks and 74% of Hispanics.

Rate -- Federally Qualified Health Centers per 100,000 population

Data from the US Department Health and Human Services for 2015 indicated that the rate of Federally Qualified Health Centers (FQHCs) in the Solano County HSA (2.88 FQHCs per 100,000) was higher than the state rate (1.97 FQHCs per 100,000).

Rate -- Preventable hospital events per 10,000 population (age-adjusted)

The rate of preventable hospitalizations reported by the Office of Statewide Health Planning and Development (OSHPD) for 2011 in Solano County was 80.58 events per 10,000 population versus the state rate of 83.17 per 10,000 population. Preventable hospital events are ambulatory care sensitive conditions which could have been prevented if adequate access to primary care was available and utilized by the community.

Rate -- Mental health providers per 100,000 population

Data from the US Department of Health and Human Services for 2015 revealed that the rate of mental health providers per 100,000 population was 169.5 for Solano County, compared to the state rate of 157.0 per 100,000 population.

Area -- Healthy Professional Shortage Area (HPSA)- Mental Health

Figure 29 displays areas in Solano County that are HPSAs for mental health providers. ZIP codes 94571 (Rio Vista), 95694 (Winters), 95620 (Dixon) and 95618 (Davis) all contain areas which are designated as HPSAs for mental health providers.
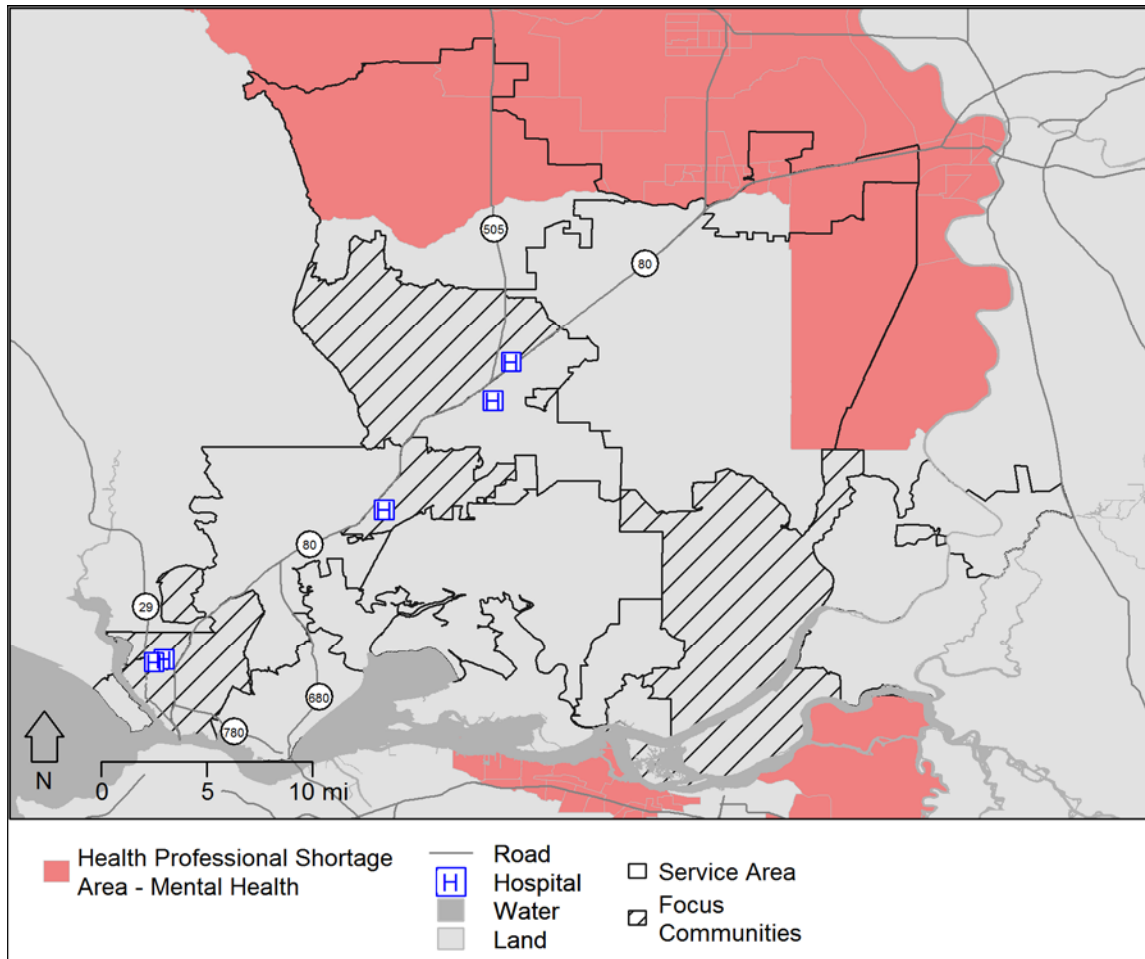
Figure 29: Mental health HPSA in the HSA
Source: Health Resources and Services Administration, 2015

Rate -- Dental health providers per 100,000 population

Data from the US Department of Health and Human Services for 2013 revealed that the rate of dental health providers per 100,000 population was 85.5 for Solano County, compared to the state rate of 77.5 per 100,000 population.

There were no federally designated HPSAs for dental care in Solano County. However, key informants and community members mentioned dental issues as a health concern. Many participants mentioned the lack of access to dental care services to support oral hygiene, including oral health in schools. It was shared that people are not going to the dentist because they don't have insurance, and it's too expensive to pay without insurance. One key informant stated, *"a lot of time, people pay out of pocket for dental services and I think with the recession, people have not been getting as much dental services (KI_5).*

One key informant talked about doing screenings in Head Start schools in the Solano County area, *"I think the last step that sticks in my mind was 37 percent of the preschoolers already had dental decay"* (KI_8).

Education

Educational attainment is important for overall health and wellbeing. Education is positively associated with health status.

Percent -- High school students graduating in four years

The California Department of Education reports the high school graduation rate as the percent of high school students receiving their high school diploma in four years. The high school graduation rate in 2013 for Solano County was 81.5%, slightly above the state percent at 80.4%. Rates by race and ethnicity showed that 88.2% of Whites graduate in four years, compared to 69.9% of Blacks, 75.7% of Hispanic/Latinos, 91.0% of Asians and 88.0% of non-Hispanic other.
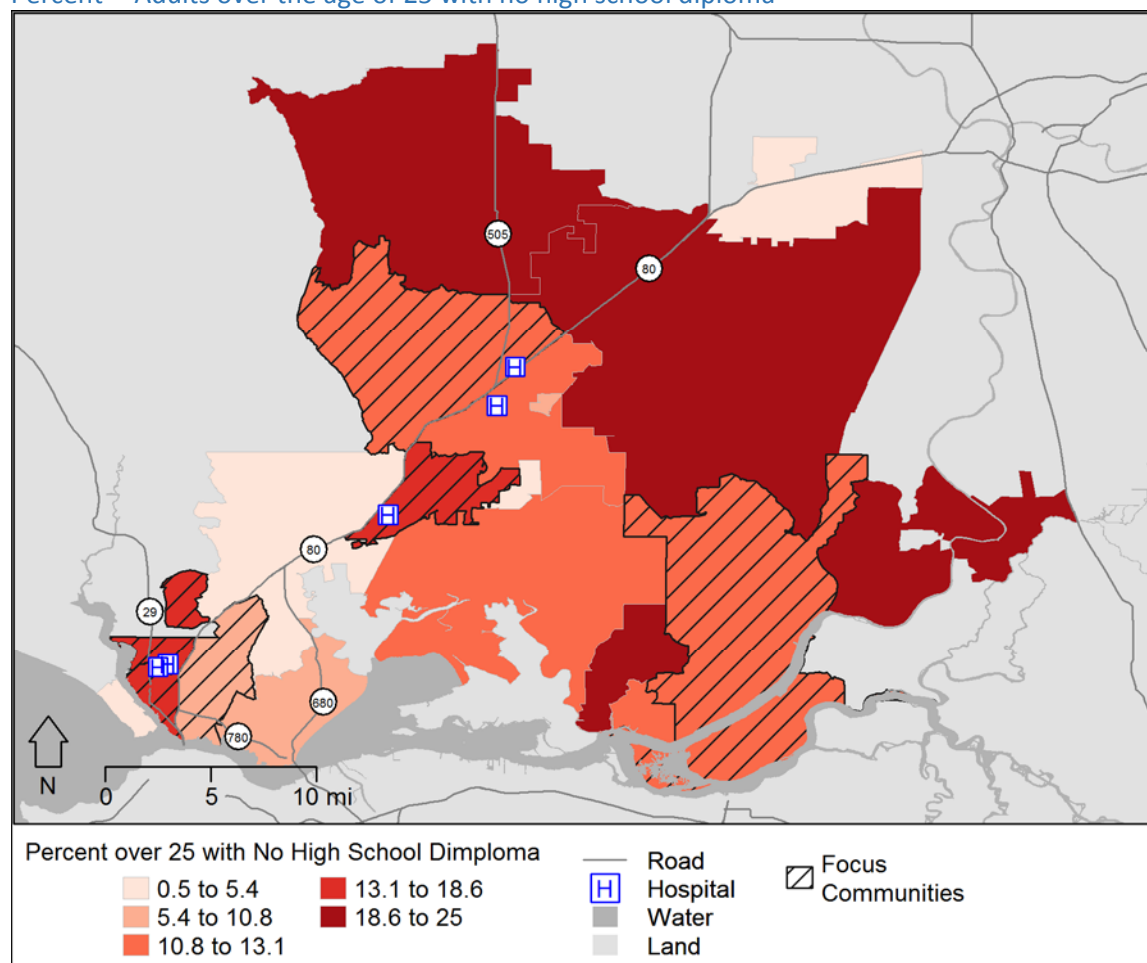
Figure 30: Percent over 25 years old with no high school diploma
Source: 2013 American Community Survey, 5-year estimates

The percent of residents with no high school diploma in the county was 12.8%, lower than the state percent of 18.8%. Seven of 18 Solano County ZIP codes had a higher percentage of residents without a diploma than both the county and state benchmarks. The highest percent was in 94512 (Birds Landing) at 25.0%.

Percent -- Non-proficient reading level in fourth grade

Data from the California Department of Education for 2012-2014 indicated that 38.0% of 4th graders in Solano County were not proficient in reading at the 4th grade level, slightly above the state benchmark of 36.0%. Reading proficiency in fourth grade is important because it is linked to poverty, unemployment and barriers to healthcare access. Percent of reading proficiency differs significantly by race and ethnicity. While 27.0% of White students were not proficient, 54.0% of Black students, 46% of Hispanic/Latino students, 41.2% of Native American/Alaskan Native students, 50.8% of Native Hawaiian/Pacific Islander students, and 24.9% of Asian students were not proficient.

Percent -- 3 and 4 year olds enrolled in preschool

Data from the US Census Bureau for 2009-2013 indicated that 46.5% of 3 and 4 year olds in the Solano County HSA are in preschool, below the state benchmark of 49.1%. This data is important as access to early education is a social determinant of health.

Rate -- Suspensions per 100 students

The rate of suspensions as reported by the California Department of Education for the Solano County HSA was 12.40 per 100 students, three times above the state rate of 4.04 per 100 students. This is an important health indicator because it is related to educational attainment and crime in the community as an adult.

Social Services

Indicators used in this assessment to examine social services included data on the percent of population receiving services including public insurance, Medicaid, public assistance, and percent of families eligible for free and reduced lunch.

Percent -- Population on public health insurance
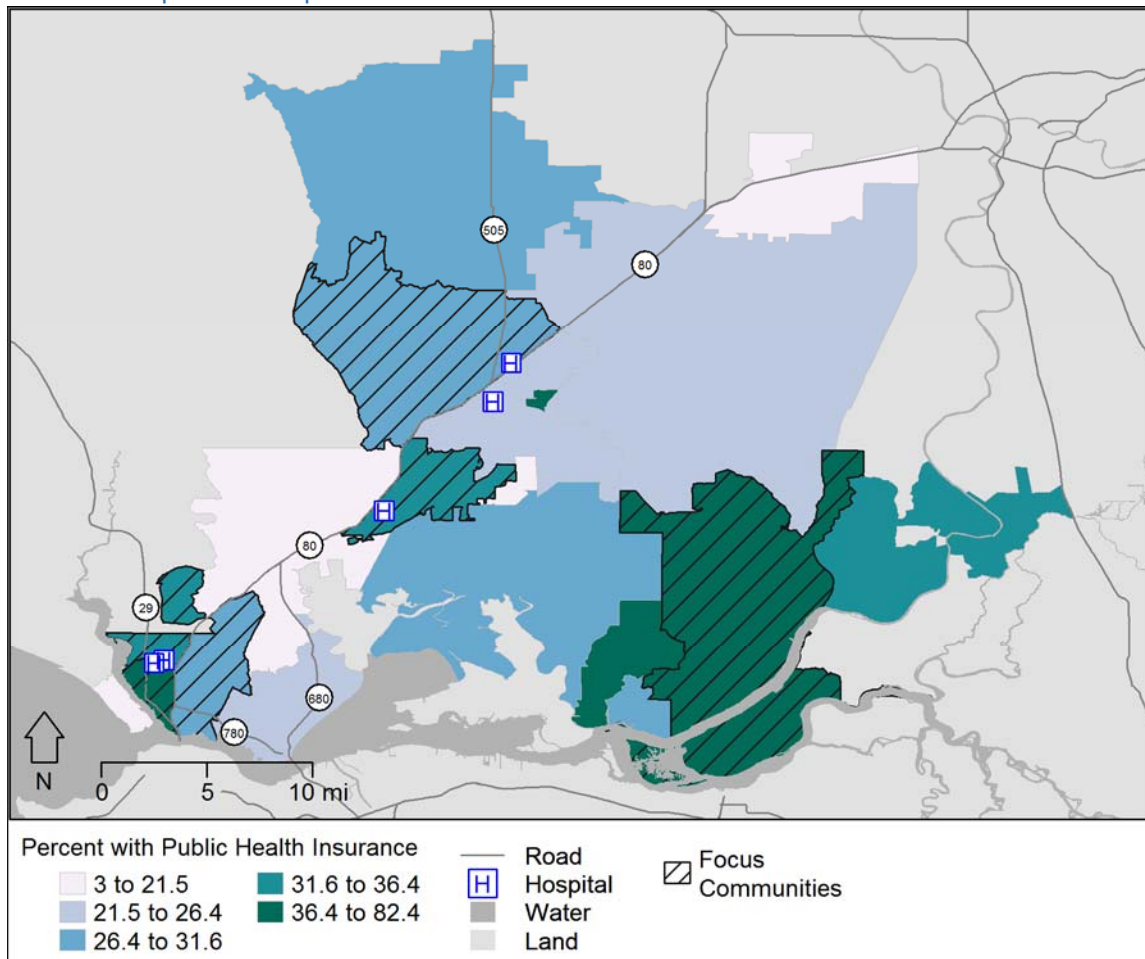
Figure 31: Percent of population on public health insurance
Source: 2013 American Community Survey, 5-year estimates

Data on the percent of population utilizing public insurance showed clear economic and access disparities. Eight of the 18 ZIP codes in Solano County had high percentages of population on public insurance in the range of 31.2% to 82.4% of residents. ZIP code 96525 (Elmira) had the highest percentage at 80.4%, drastically higher than the county percent of 32.5% and state at 29.5%.

Percent -- Population receiving Medicaid (Medi-Cal)
Though the above data provides information on the percent of population on all sources of public health insurance, the US Census Bureau reports the percent of population receiving just Medicaid. For the Solano County HSA, 19.2% of residents receive Medicaid, below the state percent at 23.4%.

Percent -- Population receiving public assistance
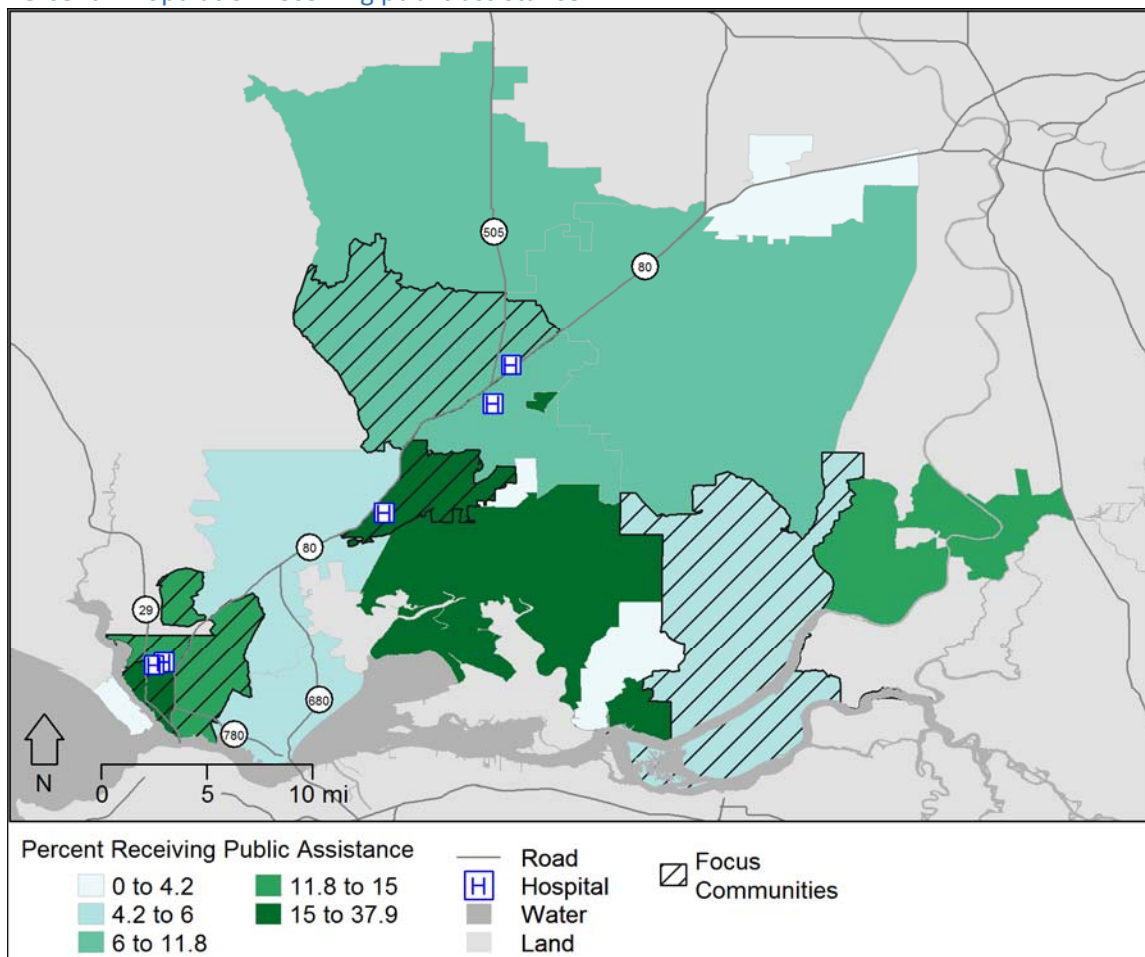
Figure 32: Percent of population receiving public assistance
Source: 2013 American Community Survey, 5-year estimates

The percent of population receiving public assistance varied greatly across the HSA. ZIP code 95625 (Elmira) had the highest percent at 37.9%, significantly above both the county (11.7%) and state (12.1%) benchmarks.

Percent -- Students eligible for Free and Reduced Price Lunch in schools
Data from the National Center for Education Statistics in 2013-2014 indicated that 50.0% of school age children in the Solano County HSA were eligible for Free and Reduced Price Lunch, below the state

percent of 58.1%. This indicator is important because it identifies service needs associated with poverty, which is a social indicator of health status in a community.

PRIORITIZED DESCRIPTION OF SIGNFICANT HEALTH NEEDS

The following is a list of eight significant health needs for Solano County in prioritized order. The processes and methods for the determination and prioritization of significant health needs are presented in the following section. Each prioritized significant health need is then detailed further with the quantitative and qualitative data which supports its inclusion.

1. Access to Behavioral Health Services (Mental Health and Substance Abuse)
2. Healthy Eating and Active Living
3. Safe, Crime and Violence Free Communities
4. Disease Prevention, Management and Treatment
5. Access to Affordable and Reliable Transportation
6. Basic Needs (Food Security, Housing, Economic Security, Education)
7. Access to High Quality Health Care and Services
8. Pollution-Free Living and Work Environments

Process and Methods for Prioritizing Significant Health Needs

Potential Health Need (PHN) categories

Significant health needs were identified through an integration of both qualitative and quantitative data. The process began with generating a list of eight broad potential health needs (PHN categories) that could exist within the health service area (HSA) as well as subcategories of these broad needs as applicable. The PHN categories and subcategories were identified through consideration of the following inputs: the health needs identified in the 2013 CHNA process; the categories in the Kaiser Permanente Community Commons Data Platform (CCDP) preliminary health needs identification tool; and a preliminary review of primary data. This resulted in a list of eight PHNs for the HSA.

Quantitative/Qualitative Analysis on PHN Categories

Once the PHN categories were created, quantitative and qualitative indicators associated with each category and subcategory were identified in a crosswalk table. The potential health need categories, subcategories and associated indicators were then vetted and finalized by members of the Community Health Needs Assessment (CHNA) Collaborative prior to identification of the significant health needs. A full list of the secondary indicators and primary data concepts associated with each PHN category is displayed in Appendix B.

Thresholds for Significant Health Needs

While all of these potential health needs exist within the HSA to a greater or lesser extent, the purpose was to identify those that were most significant. A health need was determined to be significant through extensive analysis of the secondary and primary data for the HSA.

For the secondary (quantitative) data, indicators were flagged that compared unfavorably to state benchmarks or had evident racial/ethnic group disparities. In most cases, if the data were available at the sub-county level, the HSA rate (aggregate of Solano County ZIP codes) was used to flag the indicator. Indicators from the CCDP were flagged if: (a) the HSA value performed poorly (>2% or 2 percentage

point difference) or moderately (between 1-2% or 1-2 percentage point difference) compared to the state benchmark. Indicators sourced by Valley Vision were flagged if they compared unfavorably to benchmark by any amount as presented in Appendix A.

Prioritized Significant Health Need Identification Process

Once significant health needs were identified, they were prioritized through the following process. First, health needs were given a score based upon the degree to which they met the criteria outlined above. Health needs that met or exceeded the thresholds for both the primary and secondary data categories were given a score of two (2 points); health needs that met or exceeded the thresholds for only one of the categories were given a score of one (1 point). The health needs were then ranked so that those with two points were put into a higher tier for prioritization than those with one point.

Secondly, health needs were further ranked within their tiers based upon additional analysis of the primary data. As previously mentioned, the interview guide for primary data collection prompted participants to identify the health issues in their communities that were most urgent or important to address. Thematic analysis was conducted on the responses to this question and matched with the significant health need categories. The percentage of sources referring to each health need as a priority was calculated from this analysis, and then used for further prioritization of the health needs within tiers. Health needs with a higher percentage of sources were ranked above those with a lower percentage of sources identifying that health need as a priority.

Prioritized Significant Health Needs for Solano County

Table 32 displays the full results of data synthesis to identify and prioritize the significant health needs for Solano County HSA. Each prioritized health need is then listed with the corresponding secondary and primary data which led to its determination as a need.

Table 32: Prioritization of significant health needs with data scoring and ranked by importance

Rank	Significant Health Needs	QUANT	QUAL	TOTAL	IMPORTANCE
		Percent of indicators	Percent of sources		Percent of sources deemed a priority
		Threshold 50%	Threshold 75%		Threshold 25%
1	Behavioral Health	71%	100%	2	88%
2	Healthy Eating and Active Living	69%	100%	2	65%
3	Safe Communities	75%	88%	2	18%
4	Disease Prevention/Management	73%	76%	2	18%
5	Transportation	83%	94%	2	12%
6	Basic Needs	38%	100%	1	24%
7	Access to Care	33%	94%	1	24%
8	Pollution Free Communities	94%	53%	1	0%

1. Access to Behavioral Health Services

This category encompasses the following needs related to behavioral health:

- Access to mental health and substance abuse prevention and treatment services
- Tobacco education, prevention and cessation services
- Social engagement opportunities (especially for youth and seniors)
- Suicide prevention

This category includes health behaviors (e.g. substance abuse), associated health outcomes (e.g. COPD) and aspects of the social and physical environment (e.g. social support and access to liquor stores). In addition, this category includes life expectancy since persons with severe mental health issues may have a lower life expectancy.

Table 33: Access to behavioral health services – quantitative indicators and qualitative themes

Quantitative Indicators	Qualitative Themes
- Alcohol consumption - Alcohol expenditures - Tobacco expenditures - Smoking prevalence - Lung Cancer -- ED visits - Lung Cancer incidence - Substance abuse -- ED visits - Substance abuse- Hospitalizations - CRLD -- Mortality - COPD – ED visits - COPD – Hospitalizations - Life expectancy at birth - Poor mental health days - HPSA – Mental Health - Mental health -- ED visits - Mental health -- hospitalizations - Self-Inflicted Injury – ED visits - Self-Inflicted Injury – hospitalizations - Suicide – Mortality	- Lack of psychiatrists and mental health providers - Mental health care services are limited - Lack of law enforcement education on handling mental health cases - Depression, anxiety and daily stress common for both youth and adults - Dual diagnoses (mental health and substance abuse) has increased - Barriers in accessing care - lack of providers in general - delay of appointment times - transportation - Long wait times and provider insensitivity - Lack of culturally competent providers who understand LGBTQ populations - Mental health issues such as depression, schizophrenia, Alzheimer's and dementia were mentioned most often - Accessing behavioral and substance abuse care is difficult - Care system in county lacks capacity - Alcohol and drug use a major issue - drug paraphernalia in streets and parks where kids play - Substance abuse programs are limited - Substances most commonly mentioned include crack, crystal meth, alcohol and tobacco - Homelessness youth and adults with mental health and drug/alcohol abuse common

2. Healthy Eating and Active Living

This category includes all components of healthy eating and active living including health behaviors (e.g. fruit and vegetable consumption), associated health outcomes (e.g. diabetes) and aspects of the physical environment/living conditions (e.g. food deserts). The category does not include food security, which is a component of the Basic Needs category.

Table 34: Healthy eating and active living – quantitative indicators and qualitative themes

Quantitative Indicators	Qualitative Themes
- Physical Inactivity -- Adults - Heart disease – ED visits - Heart disease – hospitalizations - Diabetes Management - Diabetes Prevalence - Fruit and vegetable expenditures - Percent youth overweight - Colorectal cancer – ED visits - Colorectal cancer – incidence - Diabetes – ED visits - Diabetes – hospitalizations - USDA defined food desert - Hypertension – ED visits - Hypertension – hospitalizations - Commuting to work – walking - Percent breastfeeding - Soda expenditures	- Lack of access to places to be physically active - crime and drug abuse; concerns with safety - large freeways, spread-out and non-walkable communities - More liquor stores than grocery stores - Lack of healthy and affordable foods in the community - Lack of healthy and affordable food options in a walkable distance - Abundance of unhealthy food options, including fast food restaurants - Increased marketing and advertisements of unhealthy food options - Not enough outdoor activities for youth - High cost of eating healthy – cheaper food is more filling - Food deserts in low SES communities - Concern that youth are drinking sugar-sweetened; unhealthy food options and vending machines in public places, including schools - Need more WIC locations, making it more accessible to access fresh food - Knowledge and education on how to make healthier food options is needed

3. Safe, Crime and Violence Free Communities

This category includes safety from violence and crime including violent crime, property crimes and domestic violence. This category includes health behaviors (e.g. assault), associated health outcomes (e.g. mortality - homicide) and aspects of the physical environment (e.g. access to liquor stores). In addition, this category includes factors associated with unsafe communities such as substance abuse and lack of physical activity opportunities, and unintentional injury such as motor vehicle accidents.

Table 35: Safe, crime and violence free communities – quantitative indicators and qualitative themes

Quantitative Indicators	Qualitative Themes
- Adult physical inactivity - Alcohol consumption - Alcohol expenditures - Substance Abuse – ED visits - Substance Abuse – hospitalizations - Homicide mortality - Fatal pedestrian accidents	- Concern over park safety - Homelessness, active drug users, needles and gang activity even during the day - Gang violence is an issue throughout the county - Safety concerns in high schools; lots of crimes, gangs and bullying - Domestic violence is of concern in the county - Need safe places to go for families experiencing domestic violence - Sex trafficking and prostitution is a concern - Need increased community and law enforcement connectedness - Concern over gun violence in Solano County communities - Concern over people growing up with few resources and turning

Quantitative Indicators	Qualitative Themes
• Assault – ED visits • Assault – hospitalizations • Domestic violence rates • Major crime rates • Unintentional injuries – ED visits • Unintentional injuries – hospitalizations	to drugs and gang violence • Alcohol and substance abuse contributed in increased community violence

4. Disease Prevention, Management and Treatment

This category encompasses the following health outcomes that require disease prevention and/or management measures as a requisite to improve health status:

- Cancer: Breast, Cervical, Colorectal, Lung, Prostate
- CVD/Stroke: Heart Disease, Hypertension, Renal Disease, Stroke
- HIV/AIDS/STDS: Chlamydia, Gonorrhea; HIV/AIDS
- Asthma

This category includes health behaviors that are associated with chronic and communicable disease (e.g., fruit/vegetable consumption, screening), health outcomes that are associated with these diseases or conditions (e.g. overweight/obesity), and associated aspects of the physical environment (e.g. food deserts).

Table 36: Access to disease prevention, management and treatment – quantitative indicators and qualitative themes

Quantitative Indicators	Qualitative Themes
● Adult physical inactivity ● Alcohol consumption ● Alcohol expenditures ● Tobacco expenditures ● Smoking prevalence ● Heart disease – ED visits ● Heart disease – hospitalizations ● Heart disease – mortality ● Asthma prevalence ● Asthma – ED visits ● Asthma – hospitalizations ● Cancer – mortality	• Sexually transmitted infections are high in the county, most common are chlamydia, gonorrhea and HIV • Heart disease, hypertension and diabetes were most commonly mentioned conditions in the community • Asthma and allergies are high in the county for both adults and youth

- Pollution Burden Score
- Cancer screening – Mammogram
- Cancer screening – Pap
- Lung cancer – ED visits
- Lung cancer – mortality
- Diabetes – ED visits
- Diabetes – hospitalizations
- USDA defined food desert
- Hypertension – ED visits
- Hypertension – hospitalizations
- Hypertension – mortality
- Cervical cancer incidence
- Breast cancer – ED visits
- Breast cancer – incidence
- Stroke – mortality
- Chlamydia – incidence
- Gonorrhea – incidence
- Lung cancer – hospitalizations
- HIV/AIDS – ED visits
- Prostate cancer – ED visits
- Prostate cancer – incidence
- Sexually transmitted infections – ED visits
- Stroke – ED visits

5. Affordable and Accessible Transportation

This category includes the need for public or personal transportation options, transportation to health services and options for persons with disabilities.

Table 37: Affordable and accessible transportation – quantitative indicators and qualitative themes

Quantitative Indicators	Qualitative Themes
• Population living near a transit stop • Commuting to work by walking • Commuting to work alone • Population with a disability	• Many residents lack adequate reliable and affordable transportation • Lack of transportation effects ability to get to grocery stores, health care services and jobs • Residents have to travel far to get comprehensive care services • Bus system is inconsistent and not running often enough • Transportation is least common in low SES communities • County residents have to travel far for work • Public transportation is expensive for daily usage

6. Basic Needs (Food Security, Housing, Economic Security, Education)

This category encompasses the following basic needs:
- Economic security (income, employment, benefits)
- Food security/insecurity
- Housing (affordable housing, substandard housing)
- Education (reading proficiency, high school graduation rates)
- Homelessness

Table 38: Basic needs (food security, housing, economic security, education) – quantitative indicators and qualitative themes

Quantitative Indicators	Qualitative Themes
• 3 and 4 year olds in school • Percent receiving Medicaid (Medi-Cal) • Percent of population on public insurance • Life expectancy at birth • Children eligible for free and reduced lunch • High school graduation rate • Reading Proficiency • Food Insecurity • Population with SNAP • School suspensions • Percent unemployed • Percent in poverty	• Lack of affordable housing options leaving people homeless • Long waiting lists to access affordable housing • Concern with the amount of homeless adults and youth in the community • A need for more homeless shelters and safe place for them to go • Cost of living is high and wages are low • A common need to work more than one job in order to make ends meet • A lot of poverty spread out through Solano County • Too many family living in poverty • People still recovering from the recession • Often times over qualified for child care, however working multiple jobs to make ends meet • Lack of employment opportunities in the region

7. Access to High Quality Health Care and Services
This category encompasses the following needs related to access to care:
- Access to Primary and Specialty Care
- Access to Dental Care
- Access to Maternal and Infant Care
- Health Education & Literacy
- Continuity of Care, Care Coordination & Patient Navigation
- Linguistically & Culturally Competent Services

This category includes health behaviors that are associated with access to care (e.g. cancer screening), health outcomes that are associated with access to care/lack of access to care (e.g. low birth weight) and aspects of the service environment (e.g. health professional shortage area). The category does not include access to mental health providers, which is a component of the Access to Behavioral Health Services category.

Table 39: Access to high quality health care and services – quantitative indicators and qualitative themes

Quantitative Indicators	Qualitative Themes
- Cancer screening – Mammogram - Cancer screening – Pap - Low birth weight 3 and 4 year olds in school - Percent receiving Medicaid (Medi-Cal) - Percent of population on public insurance - Percent breastfeeding - Soda expenditures - Access to dentists - Federally Qualified Health Centers - Dental Issues – ED visits - Dental Issues – hospitalizations - HPSA – Primary Care - Infant mortality rate - Percent receiving prenatal care	- Access to a provider is hard for low SES communities - Waiting times to see a provider are long -More people insured under the Affordable Care Act and not enough providers, causing increased weight times to see a doctor - Coordinated, culturally competent care is important -Transportation barriers to health services -Majority of health care services are in Vacaville, Fairfield and Vallejo making it challenging for people outside these communities to access services without transportation - Medi-Cal providers are hard to find -High turnover rates of providers -Lack of culturally competent care - Lack of dentists who accept Denti-Cal - More education on understand the health care system and accessing care - Language barriers between provider and patient - A need for more health education, especially sex education in schools - Lack of understanding among community providers and organizations of who is providing what services - Lack of services for undocumented population - Health care prevention services are important

- Teen pregnancy
  rate

8. Pollution-Free Living and Work Environments

This category includes measures of pollution such as air and water pollution levels. This category includes health behaviors associated with pollution in communities (e.g. physical inactivity), associated health outcomes (e.g. COPD) and aspects of the physical environment (e.g. road network density). In addition, this category includes tobacco usage as a pollutant. The category does not include climate related factors such as drought and heat stress.

Table 40: Pollution-free living and work environments – quantitative indicators and qualitative themes

Quantitative Indicators	Qualitative Themes
- Adult physical inactivity - Tobacco expenditures - Smoking rate - Heart disease – ED visits - Heart disease – hospitalizations - Asthma – prevalence - Asthma – ED visits - Asthma – hospitalizations - Cancer – mortality - Pollution Burden Score	- High density of freeways throughout Solano County - Pesticide used on agriculture crops -Plane spraying crops with chemicals on a reoccurring basis - Dust and mold believed to be contributing to asthma - Asthma and allergies are major issues for area residents - Concerns with second hand smoke going through vents in section 8 housing impacting adults and kits

RESOURCES POTENTIALLY AVAILABLE TO MEET SIGNIFICANT HEALTH NEEDS

One hundred and fifty-eight resources were identified in the Solano County health service area (HSA) in accordance with the analytical method detailed in Appendix B. The method included starting with the list of resources from the 2013 Solano County Community Health Needs Assessment (CHNA), verification that the resource still existed, and adding new resources identified from the primary data for the 2016 CHNA report. Examination of the resources revealed the following number of resources for each significant health need:

Table 41: Number of resources for each significant health need in prioritized order

Significant Health Need (in priority order)	Number of resources
1. Access to Behavioral Health Services (Mental Health and Substance Abuse)	67
2. Healthy Eating and Active Living	30
3. Safe, Crime and Violence Free Communities	14
4. Disease Prevention, Management and Treatment	14
5. Affordable and Accessible Transportation	13
6. Basic Needs (Food Security, Housing, Economic Security, Education)	81
7. Access to High Quality Health Care and Services	59
8. Pollution-Free Living and Work Environments	1

For more specific examination of resources by significant health need and by geographic locations, see the full list in Appendix G.

IMPACT OF ACTIONS TAKEN SINCE PREVIOUS CHNA

[SECTION IS PURPOSLY LEFT BLANK FOR HOSPITAL SYSTEMS TO ADD IN THEIR EVALUATION OF THE 2013 IMPLEMANTION PLANS]

CONCLUSION

Nonprofit hospitals and county public health departments play an important role in the lives of the communities they serve. Community Health Needs Assessments (CHNAs) help 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. The intention of the CHNA is to assist in improving the lives of health service area residents, and the larger geographical area served. Results provided in this assessment will help inform efforts with work towards creating a healthier community and a better quality of life.

APPENDICES

Appendix A: Secondary Data Dictionary and Processing

Introduction
The secondary data supporting the 2016 Community Health Needs Assessment (CHNA) was collected from a variety of sources, and was processed in multiple stages before it was used for analysis. This document details those various stages. Approaches used to define ZIP code boundaries, and the approaches that were used to integrate records reported for PO boxes into the analysis are described. General data sources are then listed, followed by a description of the basic processing steps applied to most variables. It concludes by detailing additional specific processing steps used to generate a subset of more complicated indicators.

HSA vs. County Benchmark Rates
Due to data availability, the service area for the Solano 2016 Community Health Needs Assessment was defined in two separate ways. One approach was to use Solano County as the service area. While this approach was the most natural, and best reflected the focus area of collaborative members, it did not allow for a consideration of variation in conditions across the county. An alternative approach was also used, where the service area was defined based on ZIP Code Tabulation Areas (ZCTAs), as defined by the US Census Bureau. In this approach, all ZCTAs that had a meaningful overlap with Solano County were included in the analysis. The benefit of this approach was that it allowed for the calculation of morbidity and mortality rates based on data available at the ZIP code level. This allowed for a better understanding of how these conditions varied within the county.

These different service area definitions also lead to the creation of different benchmarks representing the overall conditions within the study area. For indicators reported at the actual county level, county rates were either obtained or calculated for the county as a whole. Some indicators were not available at the county level. In these instances, benchmark rates were calculated for the set of ZCTAs (or estimated for ZIP codes, depending on the indicator). Rates calculated for the set of ZCTAs contained in the service area were found by summing cases across all ZCTAs, and dividing that number by the sum of the appropriate denominator across all ZCTAs. Service area rates obtained from the Kaiser Permanente Community Commons Data Platform (CCDP) were estimated using a process described on their community commons platform. In most cases, the service area values represent the aggregate of all data for geographies (ZIP codes, counties, tracts, etc.) which fall within the service area boundary. For more detail, visit the CCDP (http://www.communitycommons.org/groups/community-health-needs-assessment-chna/chna-data-platform/faqs/).

ZIP Code Definitions
All morbidity and mortality variables 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 morbidity and mortality data reported at the ZIP code level, allow us 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 morbidity and mortality 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[30] were compared to ZCTA boundaries[31]. Because various morbidity and mortality 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 final year in the case of variables aggregated over multiple years) for which the morbidity and mortality variables 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 that they fell inside of, or in the case of rural areas that are not completely covered by ZCTAs, the ZCTA to which they were closest. Morbidity and mortality information associated with these PO Box or unique ZIP codes were then assigned added to the ZCTAs to which they were assigned.

For example, 94609 is a PO Box located in Carmichael. 94609 is not represented by a ZCTA, but it could have patient data reported as morbidity and mortality variables. Through the process identified above, it was found that 94609 is located within 94608, which does have an associated ZCTA. Morbidity and mortality data for ZIP codes 94609 and 94608 were therefore assigned to ZCTA 94608, and used to calculate rates. All ZIP code level morbidity and mortality variables given in this report are therefore actually 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 mortality, morbidity, and socio-economic variables 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 morbidity and mortality variables. Table 42 below lists the 2013 population characteristic variables and sources. Table 43 below lists sources for variables used to calculate morbidity and mortality rates, which were collected for 2012, 2013, and 2014. These demographic variables 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. Health

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

[31] U.S. 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

outcome and health behavior indicators were also collected from the Kaiser Permanente Community Commons Data Platform (CCDP) to compliment the indicators already collected from other sources.

Kaiser Permanente Community Commons Data Platform

The Community Commons Data Platform (CCDP) is a web-based platform designed to assist hospitals, non-profit organizations, state and local health departments, financial institutions and other organizations seeking to better understand the needs and assets of their communities. The CCDP was used to collect additional indicators, including indicators by race and ethnicity, in order to better understand what is driving health in the community and prioritize issues that require the most urgent attention. The list of CCDP indicators used is detailed below in Table 46, Remaining Secondary Indicators.

Table 42: Demographic variables collected from the US Census Bureau[32]

Derived Variable Name	Source Variable 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: -	2013 American Community Survey 5-year Estimate Table B17017

[32] U.S. 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

	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	
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
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 that 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 with Public Assistance	INCOME AND BENEFITS (IN 2013 INFLATION-ADJUSTED DOLLARS) – With Food Stamp/SNAP benefits in the past 12 months	2013 American Community Survey 5-year Estimate Table DP03
Percent with 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

Percent Households with Commute Times to work 60 minutes or more	Workers with travel times 60 to 89 minutes; workers with travel times 90 minutes or more; Total workers 16 years and over who did not work at home;	2013 American Community Survey 5-Year Estimate Table B08012
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
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
Percent of Homeowners with Mortgage with Housing Costs above 30% of Income	Percent; SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME (SMOCAPI) - Housing units with a mortgage (excluding units where SMOCAPI cannot be computed) - 30.0 to 34.9 percent; Percent; SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME (SMOCAPI) - Housing units with a mortgage (excluding units where SMOCAPI cannot be computed) - 35.0 percent or more	2013 American Community Survey 5-year Estimate Table DP04
Percent of Homeowners with no Mortgage with Housing Costs above 30% of Income	Percent; SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME (SMOCAPI) - Housing unit without a mortgage (excluding units where SMOCAPI cannot be computed) - 30.0 to 34.9 percent; Percent; SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME	2013 American Community Survey 5-year Estimate Table DP04

	(SMOCAPI) - Housing unit without a mortgage (excluding units where SMOCAPI cannot be computed) - 35.0 percent or more	
Percent of Renters with Rent above 30% of Income	Percent; GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME (GRAPI) - Occupied units paying rent (excluding units where GRAPI cannot be computed) - 30.0 to 34.9 percent; Percent; GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME (GRAPI) - Occupied units paying rent (excluding units where GRAPI cannot be computed) - 35.0 percent or more	2013 American Community Survey 5-year Estimate Table DP04
Percent of All Housing Units with Housing Costs above 30% of Income	Percent; SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME (SMOCAPI) - Housing units with a mortgage (excluding units where SMOCAPI cannot be computed) - 30.0 to 34.9 percent; Percent; SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME (SMOCAPI) - Housing units with a mortgage (excluding units where SMOCAPI cannot be computed) - 35.0 percent or more; Percent; GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME (GRAPI) - Occupied units paying rent (excluding units where GRAPI cannot be computed) - 30.0 to 34.9 percent; Percent; GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME (GRAPI) - Occupied units paying rent (excluding units where GRAPI cannot be computed) - 35.0 percent or more; Percent; GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME (GRAPI) - Occupied units paying rent (excluding units where GRAPI cannot be computed) - 30.0 to 34.9 percent; Percent; GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME (GRAPI) - Occupied units paying rent (excluding units where GRAPI cannot be computed) - 35.0 percent or more; Housing units with a mortgage (excluding units where SMOCAPI cannot be computed); Housing unit without a mortgage (excluding units where SMOCAPI cannot be computed);Occupied units paying rent (excluding units where GRAPI cannot be computed)	2013 American Community Survey 5-year Estimate Table DP04

Table 43: Census variables used for mortality and morbidity rate calculations[3,33]

Derived Variable Name	Source Variable Names	Source

[33] 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

Total Population	Total Population	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013, 2014)
		2010 Decennial Census Summary File 1
Female	Female	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013, 2014)
Male	Male	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013, 2014)
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, 2014); 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, 2014); 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, 2014)
Age 15 to 24	15 to 19 years; 20 to 24 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013, 2014)
Age 25 to 34	25 to 34 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013, 2014)
Age 35 to 44	35 to 44 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013, 2014)
Age 45 to 54	45 to 54 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013, 2014)
Age 55 to 64	55 to 59 years; 60 to 64 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013, 2014)
Age 65 to 74	65 to 74 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013, 2014)
Age 75 to 84	75 to 84 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013, 2014)
Age 85 and over	85 years and over	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013, 2014)

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, 2014)
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, 2014)
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, 2014)
Native American	HISPANIC OR LATINO AND RACE - Total population - Not Hispanic or Latino - American Indian and Alaska Native alone	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013, 2014)
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, 2014)

Collected morbidity and mortality data included the number of emergency department (ED) discharges, hospital (H) discharges, and mortalities associated with a number of conditions, as well as various cancer and STI incidence rates. Aggregated 2011 – 2013 ED and H discharge data were obtained from the Office of Statewide Health Planning and Development (OSHPD). Table 44 lists the specific variables 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 principle 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, this data was 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 74, 75 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.

Table 44: 2011 – 2013 OSHPD hospitalization and emergency department discharge data

Category	Variable 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
	Heart Disease	410-417, 428, 440, 443, 444, 445, 452
	Chronic Kidney Disease	580-589
	Stroke	430-436, 438
Infectious Disease	HIV/AIDS	042-044
	STIs	042-044, 090-099, 054.1, 079.4
	Tuberculosis	010-018, 137
Injuries[34]	Assault	E960-E969, E999.1
	Self-Inflicted Injury	E950-E959
	Unintentional Injury	E800-E869, E880-E929
Mental Health	Mental Health	290, 293-298, 301,311
	Mental Health: Substance Abuse	291-292, 303-305
Respiratory	Asthma	493-494
	Chronic Obstructive Pulmonary Disease (COPD)	490-496
Other	Hip Fractures	820
	Oral cavity/Dental	520-529
	Osteoporosis	733

Mortality data, along with some birth data, for each ZIP code in 2010, 2011, and 2012 were collected from the California Department of Public Health (CDPH). The specific variables collected are defined in Table 40. The majority of these variables 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 data from 2010 to 2012. These variables 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 birthweight, and births with mother's age at delivery under 20. Table 45 consequently also lists the years for which each variable was collected.

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[34] E-code definitions for injury variables 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

Table 45: CDPH birth and mortality data by ZIP code

Variable 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
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

Cancer incidence data were obtained from the California Cancer Registry for each ZIP code. The data reported the total aggregated incidence of cancers from 2010 – 2012 for breast, colorectal, lung, and prostate cancers. ZIP codes with more than zero but fewer than three cases were masked. For processing purposes, these masked values were treated as zeros.

Chlamydia and gonorrhea incidence data for 2014 were obtained from the County Public Health offices in El Dorado, Placer, Sacramento, Solano and Yolo counties. The incidence data were reported by 2014 ZCTA per 10,000 population. A number of steps were taken to process these variables due to differences in reporting geography and data provided. First, some counties provided pre-calculated rates, while others provided raw counts by ZIP code. Second, some counties provided data for all ZIP codes, while others provided only data for those with reported cases exceeding a certain masking standard. Finally, because ZIP codes can cross county boundaries, each county health office provided only information on the cases that occurred in ZIP codes within their respective counties.

The following approaches were applied to address these irregularities. First, pre-calculated rates were only used for those counties for which raw counts were not reported. Second, a consistent standard to mask rates for ZIP codes with 5 or fewer cases was applied across all counties reporting raw counts, and

for counties only reporting rates for a subset of ZIP codes (i.e. Solano County), it was assumed that counties for which data was not reported had 0 incidence rates. For ZIP codes that fell within multiple counties providing data, these cases were simply totaled for the given ZIP code. For ZIP codes that fall partially outside of the counties reporting data, the calculated rates are based only on cases occurring within the reporting counties.

The remaining secondary variables were collected from a variety of sources, and at various geographic levels. Table 46 lists the sources of these variables, and lists the geographic level at which they were reported.

Table 46: Remaining secondary variables

Variable	Year	Definition	Reporting Unit	Data Source
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 Health Provider 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)

Variable	Year	Definition	Reporting Unit	Data Source
Domestic Violence Rate	2013	Domestic Violence-Related Calls for Assistance	Law enforcement jurisdiction	California Attorney General – Criminal Justice Statistics Center: Domestic Violence-Related Calls for Assistance http://oag.ca.gov/crime/cjsc/stats/domestic-violence (last access 30 Oct 2015)
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
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)
Access to Dentists	2013	Dentists, Rate per 100,000 Population	County	US Department of Health and Human Services, Health Resources and Services Administration, Areas Health Resource File http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Access to Mental Health Providers	2014	Mental Health Care Provider, Rate per 100,000 Population	County	University of Wisconsin Population Health Institute, County Health Ranking http://www.communitycommons.org/groups/community-health-needs-assessment-chna

Variable	Year	Definition	Reporting Unit	Data Source
Access to Primary Care	2012	Primary Care Physicians, Rate per 100,000 Population	County	US Department of Health & Human Services, Health Resources and Services Administration, Area Health Resource File http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Alcohol – Excessive Consumption	2006 – 2012	Estimated Adults Drinking Excessively (Age-Adjusted Percentage)	County	Center for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Accessed via the Health Indicators Warehouse. U.S. Department of Health and Human Services, Health Indicators Warehouse http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Alcohol – Expenditures	2014	Alcoholic Beverage Expenditures, Percentage of Total Food-At-Home Expenditures	Tract	Nielsen, Nielsen SiteReports http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Asthma – Prevalence	2011 – 2012	Percent Adults with Asthma	County	Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Additional data analysis by CARES http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Breastfeeding (Any)	2012	Percentage of Mothers Breastfeeding (Any)	County	California Department of Public Health (CDPH) – Breastfeeding Statistics http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Cancer Incidence (Cervical)	2010 – 2012	Annual Cervical Cancer Incidence Rate (per 100,000 Population)	County	National Institute of Health, National Cancer Institute, Surveillance, Epidemiology, and End Results Program. State Cancer Provides, 2008-2012 http://www.communitycommons.org/groups/community-health-needs-assessment-chna

Variable	Year	Definition	Reporting Unit	Data Source
Cancer Screening - Mammogram	2008 - 2012	Annual Cervical Cancer Incidence, Rate per 100,00 Population	County	National Institutes of Health, National Cancer Institute, Surveillance, Epidemiology, and End Results Program. State Cancer Profiles http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Cancer Screening – Pap Test	2012	Percent Adults Females Age 18+ with Regular Pap Test (Age Adjusted)	County	Dartmouth College Institute for Health Policy & Practice, Dartmouth Atlas of Health Care http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Cancer Screening – Sigmoid/Colonoscopy	2006 – 2012	Percent Adults Screened for Colon Cancer (Age Adjusted)	County	Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Accessed via the Health Indicators Warehouse. US Department of Health & Human Services, Health Indicators Warehouse http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Children Eligible for Free/Reduced Price Lunch	2013 - 2014	Percent Students Eligible for Free or Reduced Price Lunch	Address	National Center for Education Statistics, NCES – Common Core of Data http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Commute to Work – Alone in Car	2009 – 2013	Percentage of Workers Commuting by Car, Alone	Tract	US Census Bureau, American Community Survey http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Commute to Work – Walking/Biking	2009 - 2013	Percentage Walking or Biking/Work	Tract	US Census Bureau, American Community Survey http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Diabetes Management (Hemoglobin A1c Test)	2012	Percent Medicare Enrollees with Diabetes with Annual Exam	County	Dartmouth College Institute for Health Policy & Clinical Practice, Dartmouth Atlas of Health Care http://www.communitycommo

Variable	Year	Definition	Reporting Unit	Data Source
				ns.org/groups/community-health-needs-assessment-chna
Diabetes Prevalence	2012	Percent Adults with Diagnosed Diabetes (Age Adjusted)	County	Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Economic Security – Commute Over 60 Minutes	2009 - 2013	Percent of Workers Communities More than 60 Minutes	Tract	US Census Bureau, American Community Survey http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Education – High School Graduation Rate	2013	Cohort Graduation Rate	County	California, Department of Education http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Education – Reading Below Proficiency	2012 – 2013	Percentage of Grade 4 ELA Test Score Not Proficient	County	California, Department of Education http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Education – School Enrollment Age 3-4	2009 - 2013	Percentage Population Age 3-4 Enrolled in School	Tract	US Census Bureau, American Community Survey http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Federally Qualified Health Centers	2015	Federally Qualitied Health Centers, Rate per 100,000 Population	Address	U.S. Department of Health & Human Services, Center for Medicare & Medicaid Services, Provider of Services File - Sept. 2015. http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Food Environment – Fast Food Restaurants	2011	Fast Food Restaurants, Rate per 100,000 Population	Tract	U.S. Census Bureau, County of Business Patterns. Additional data analysis by CARES http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Food Environment	2011	Grocery Stores, Rate per 100,000 Population	Tract	U.S. Census Bureau, County of Business Patterns. Additional

Variable	Year	Definition	Reporting Unit	Data Source
– Grocery Stores				data analysis by CARES http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Food Security – Food Insecurity Rate	2013	Percentage of the Population with Food Insecurity	County	Feeding America http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Food Security – Population Receiving SNAP	2011	Percent Population Receiving SNAP Benefits	County	U.S. Census Bureau, Small Area Income & Poverty Estimates. http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Fruit/Vegetable Expenditures	2014	Fruit / Vegetable Expenditures, Percentage of Total Food-At-Home Expenditures	Tract	Nielsen, Nielsen SiteReports http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Heart Disease Prevalence	2011 – 2012	Percent Adults with Heart Disease	County (Grouping)	University of California Center for Health Policy Research, California Health Interview Survey http://www.communitycommons.org/groups/community-health-needs-assessment-chna
High Blood Pressure - Unmanaged	2006 - 2010	Percent Adults with High Blood Pressure	County	Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Additional data analysis by CARES http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Housing – Assisted Housing	2013	HUD – Assisted Units, Rate per 10,000 Housing Units (2010)	County	U.S. Department of Housing and Urban Development http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Housing – Substandard Housing	2009 – 2013	Percent Occupied Housing Units with One or More Substandard Conditions	County	U.S. Census Bureau, American Community Survey http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Insurance – Population Receiving	2009 – 2013	Percent of Insured Population Receiving Medicaid	Tract	U.S. Census Bureau, American Community Survey http://www.communitycommo

Variable	Year	Definition	Reporting Unit	Data Source
Medicaid				ns.org/groups/community-health-needs-assessment-chna
Lack of Social or Emotional Support	2006 – 2012	Percent Adult Without Adequate Social / Emotional Support (Age-Adjusted)	County	Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Accessed via the Health Indicators Warehouse. US Department of Health & Human Services, Health Indicators Warehouse http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Liquor Store Access	2012	Liquor Stores, Rate per 100,000 Population	County	U.S. Census Bureau, County Business Patterns. Additional data analysis by CARES http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Low Fruit/Vegetable Consumption (Youth)	2011 - 2012	Percent Population Age 2-13 with Inadequate Fruit/Vegetable Consumption	County (Grouping)	University of California Center for Health Policy Research, California Health Interview Survey http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Mental Health – Poor Mental Health Days	2006 - 2012	Average Number of Mentally Unhealthy Days per Month	County	Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Accessed via the Health Indicators Warehouse http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Mortality – Homicide	2010 - 2012	Homicide, Age-Adjusted Mortality, Rate per 100,000 Population	ZIP Code	University of Missouri, Center for Applied Research and Environmental Systems. California Department of Public Health, CDPH - Death Public Use Data http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Mortality – Motor Vehicle	2010 -	Motor Vehicle Accident, Age Adjusted Mortality, Rate per	ZIP Code	University of Missouri, Center for Applied Research and

Variable	Year	Definition	Reporting Unit	Data Source
Accident	2012	100,000 Population		Environmental Systems. California Department of Public Health, CDPH - Death Public Use Data http://www.communitycommons.org/groups/community-health-needs-assessment-chna University of Missouri, Center for Applied Research and Environmental Systems.
Mortality – Pedestrian Accident	2010 - 2012	Pedestrian Accident – Age Adjusted Mortality, Rate per 100,000 Population	ZIP Code	California Department of Public Health, CDPH - Death Public Use Data http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Obesity (Youth)	2013 - 2014	Percent Obese	County	California Department of Education, FITNESSGRAM® Physical Fitness Testing http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Overweight (Youth)	2013 - 2014	Percent Overweight	County	California Department of Education, FITNESSGRAM® Physical Fitness Testing http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Physical Inactivity (Adult)	2012	Percent Population with no Leisure Time Physical Activity	County	Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Physical Inactivity (Youth)	2013 - 2014	Percent Physically Inactive	County	California Department of Education, FITNESSGRAM® Physical Fitness Testing http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Preventable Hospital Service Days	2011	Age-Adjusted Discharge, Rate per 10,000 Population	County	California Office of Statewide Health Planning and Development, OSHPD Patient Discharge Data. Additional data

Variable	Year	Definition	Reporting Unit	Data Source
				analysis by CARES http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Soft Drink Expenditures	2014	Soda Expenditures, Percentage of Total Food-At-Home Expenditures	Tract	Nielsen, Nielsen Site Reports http://www.communitycommons.org/groups/community-health-needs-assessment-chna
STD – HIV Hospitalizations	2011	Age-Adjusted Discharge, Rate per 10,000 Population	County	California Office of Statewide Health Planning and Development, OSHPD Patient Discharge Data. Additional data analysis by CARES http://www.communitycommons.org/groups/community-health-needs-assessment-chna
STD – HIV Prevalence	2010	Population with HIV/AIDS, Rate by 100,000 Population	County	US Department of Health & Human Services, Health Indicators Warehouse. Centers for Disease Control and Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention http://www.communitycommons.org/groups/community-health-needs-assessment-chna
STD – No HIV Screening	2011 - 2012	Percent Adults Never Screened for HIV/AIDS	County	Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Additional data analysis by CARES http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Tobacco Expenditures	2014	Cigarette Expenditures, Percentage of Total Household Expenditures	Tract	Nielsen, Nielsen SiteReports http://www.communitycommons.org/groups/community-health-needs-assessment-chna
Transit – Road Network Density	2011	Total Road Network Density (Road Miles per Acre)	County	Environmental Protection Agency, EPA Smart Location Database http://www.communitycommons.org/groups/community-health-needs-assessment-chna

Variable	Year	Definition	Reporting Unit	Data Source
Violence – School Suspensions	2013 - 2014	Suspension Rate	County	California Department of Education. 2013-2014 school year http://www.communitycommons.org/groups/community-health-needs-assessment-chna

General Processing Steps

Rate Smoothing

All OSHPD, as well as all single-year CDPH, variables 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 code with no value reported were treated as having a value of 0. If a 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 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 variables. However, rather than calculating raw rates, empirical bayes smoothed rates (EBR) were created for all variables possible[35]. 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 variable 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 variable 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,

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

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 variables (2010 – 2012), 2011 data was used. Population data from 2012 was used to calculate single-year CDPH variables.

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, but were kept as NA when smoothing the value for the individual ZCTA. This meant that smoothed rates could be calculated for each variable in each area, but if a given ZCTA had a value of NA for a given variable, it retained that NA value after smoothing.

EBR were attempted for every overall variable, but could not be calculated for certain variables. In these cases, raw rates were used instead. The final rates in either case for H, ED, and the basic mortality variables were then multiplied by 10,000, so that the final rates represent H or ED discharges, or deaths, per 10,000 people.

Age Adjustment

The additional step of age adjustment[36] was performed on the all-cause mortality variables. Because the occurrence of these conditions 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 their patterns. For example, it would not be unusual for a ZCTA with an older population to have a higher rate of ED visits for stroke than a ZCTA with a younger population. In order to accurately compare the experience of ED visits for stroke 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 variables, 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 1 and from 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 variables 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 variables 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 variable 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 populations variables. State rates were calculated as raw rates by

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[36] 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.

first summing all county level values (treating and NA value as a 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 variable 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[37,38], or else obtained from the County Health Status Profiles 2014[39]. The resulting benchmark values for CDPH and OSHPD variable were all reported as rates per 10,000 unless the original variable was reported using some other standard as described below.

Processing for Specific Variables

Additional processing was needed to create the Community Health Vulnerability Index (CHVI), the CDPH related variables, and as well as some of the other variables. The process used to calculate these variables are described in this section below.

Social Inequities Dataset

The social inequities dataset included 22 indicators (presented in Table 47) that were analyzed at the ZIP code level to identify and flag the top 20% of ZIP codes with the highest rates of social inequities compared to county and state benchmarks. For the CHVI, ZIP codes were flagged if they intersected a census tract whose CHVI value fell within the top 20% of the HSA, values 3.9 to 6.0. In addition to quantitative measures, Focus Communities were further verified through analysis of input from initial service area wide key informant interviews. Input on vulnerable locations within the HSA were considered from interviews with public health experts and area service providers. Locations identified as vulnerable were then cross-referenced with the ZIP codes that were flagged in the CHVI and social inequities data, as well as with ZIP codes that were identified as Focus Communities in 2013. This was included to allow greater continuity between CHNA round and to reflect the work of the hospitals oriented to serve these disadvantaged communities.

Table 47: Social Inequities indicators to determine Focus Communities

Median income	Percent Non-White or Hispanic population
GINNI coefficient (measure of income inequality)	Foreign born population
Population in poverty (under 100 Federal Poverty Level)	Citizenship status

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[37] 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
[38] 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/
[39] 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

Percent with public assistance	Population 5 Years or Older who speak Limited English
Percent households 65 years or older in poverty	Single female headed households
Percent families with children in poverty	Percent homeowners with housing expenses greater than 30% of income (homes with mortgages)
Percent single female headed households in poverty	Percent homeowners with housing expenses greater than 30% of income (homes without mortgages)
Percent unemployed	Percent renters with housing expenses greater than 30% of income
Uninsured population	Population over 18 that are civilian veterans
Population with public insurance	Percent renter occupied housing units
Population with any disability	Percent population 25 or older without a high school diploma

Community Health Vulnerability Index (CHVI)

The CHVI is a health care disparity index based in largely based on the Community Need Index (CNI) developed by Barsi and Roth[40]. The CHVI uses the same basic set of demographic variables to address health care disparity as outlined in the CNI, but these variables are aggregated in a different manner to create the CHVI. For this report, the following nine variables 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 variable was scaled using a min-max stretch, so that the tract with the maximum value for a given variable within the study area received a value of 1, and the tract with the minimum value for that same variable within the study area received a 0. All scaled variables were then summed to form the final CHVI. Areas with higher CHV values therefore represent locations with higher concentrations of the target index populations, and are likely experiencing poorer health care disparities.

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[40] 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
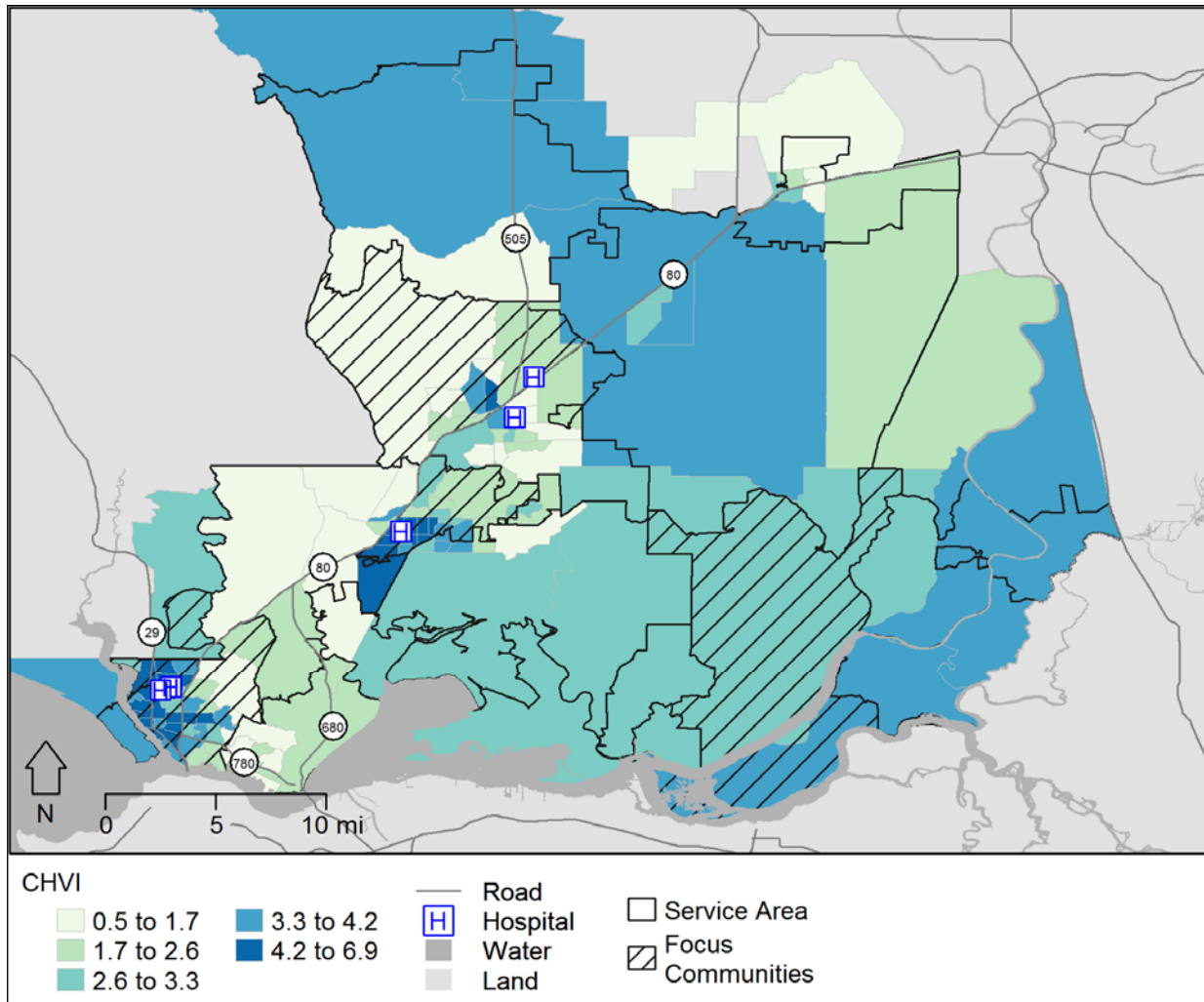
Figure 33: Community Health Vulnerability Index for Solano County

Infant Mortality Rate

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 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

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 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[41] using the Human Ecology, Evolution, and Health Lab's[42] example

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[41] 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.

period life table function. This function was modified to calculate life tables for each ZCTA, and to allow the life table to be calculated from submitted age stratified mortality rates. The age stratified mortality rates were calculated for each ZIP code by dividing the total number of deaths in a given age category from 2010 - 2012 by three times the ZCTA population for that age group in 2010 (smoothed to EBR). The age group population was multiplied by three to match the three years of mortality data that were used to derive the rates. Multiple years were used to increase the stability of the estimates.

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[43], but using the Shannon's evenness index (Beals, Gross, & Harrell, 2000) rather than the specific methodology described therein. The diversity index represents how evenly 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, 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 and Domestic Violence Rates

Major crimes and domestic violence related calls for assistance reported in the State of California Department of Justices' Crime Data reports are listed by reporting police agency. In order to estimate major crime and domestic violence 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.

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 cases were added to those places. For example, the crimes or calls for assistance 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 or calls 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 or calls for assistance for each Census place resulting from the process described above were was 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

[42] 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

[43] 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

all Census places 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 and domestic violence related calls for assistance 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 Justices' Crime Data reports, available online at: http://oag.ca.gov/crime.

Park Access

The park access variable reports the percent of the 2010 population residing within each ZCTA that lives in a Census block that intersects a ½ mile buffer around the closest park. ESRI's U.S. Parks data set[44], 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) variable 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 variable was calculated using a modification of the methods described by the National Center for Chronic Disease Prevention and Health Promotion[45] 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 the ZCTA. HSA mRFEI benchmark values were 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.

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

[45] 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

Appendix B: Detailed Analytic Methodology including SHN Categorization

Significant Health Need Identification Process

The Significant Health Need identification process began with a review of significant health needs identified in the Community Health Need Assessment (CHNA) reports conducted by Valley Vision, Inc. during the 2013 CHNA round. This list of significant health needs was compared to preliminary secondary data, health needs associated with the Kaiser Permanente (KP) Community Commons Data Platform (CCDP) and input from health systems participating in the Solano 2016 collaborative CHNA process. This culminated in the final set of 8 potential health needs for the 2016 CHNA shown in Table 48 below.

Table 48: Overview of Potential Health Need (PHN) categories

Potential Health Need Category	Abbreviation
Access to High Quality Health Care and Services *(i.e., Access to Care, Oral Health, Maternal and Infant Health)*	Access to Care
Access to Behavioral Health Services *(i.e., Mental Health, Substance Abuse)*	Behavioral Health
Affordable and Accessible Transportation	Transportation
Basic Needs *(i.e., Food, Housing, Employment, Education)*	Basic Needs
Disease Prevention, Management and Treatment *(i.e., Cancer, Asthma, CVD/Stroke, HIV/AIDS/STIs)*	Disease Prevention
Healthy Eating and Active Living	HEAL
Pollution Free Living and Work Environments	Pollutant Free
Safe, Crime and Violence-Free Communities	Safe Communities

The next step in the significant health need identification process was to identify those secondary indicators associated with each of these significant health needs. Values for these indicators were then calculated for each health service area, and then compared to relevant state benchmarks. The percentage of indicators comparing poorly to state benchmarks for each health need was then calculated. Table 49 below shows the indicator/health need cross walk table, shows which variables were collected directly by Valley Vision and which were obtained through the CCDP. Finally, it gives a general description of the type of value calculated for the health service area (HSA) for each variable, as well as the direction of comparison to the state benchmark.

Table 49: Indicators, health needs, and benchmarks

Name	HEAL	MH_SA	ACT	BASIC NEEDS	POLL-UT	VIOL	TRAN-SIT	DIS PREV	HSA Value	Benchmark Comparison	Source
Breastfeeding (Any)	Yes		Yes						County Rate	Below State Benchmark	CCDP
Soft Drink Expenditures	Yes		Yes						Calculated HSA Rate	Exceeds State Benchmark	CCDP
Economic Security - Commute Over 60 Minutes	Yes			Yes			Yes		Kaiser Rate	Exceeds State Benchmark	CCDP
Physical Inactivity (Adult)	Yes				Yes	Yes		Yes	Maximum Rate for Associated County	Exceeds State Benchmark	CCDP
Physical Inactivity (Youth)	Yes				Yes	Yes		Yes	Maximum Rate for Associated County	Exceeds State Benchmark	CCDP
Obesity (Youth)	Yes				Yes			Yes	Maximum Rate for Associated County	Exceeds State Benchmark	CCDP
Heart Disease (ED)	Yes				Yes			Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Heart Disease (H)	Yes				Yes			Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Commute to Work - Walking/Biking	Yes						Yes		Calculated HSA Rate	Below State Benchmark	CCDP
Diabetes Management (Hemoglobin A1c Test)	Yes							Yes	Calculated HSA Rate	Below State Benchmark	CCDP
Diabetes Prevalence	Yes							Yes	County Rate	Exceeds State Benchmark	CCDP
Fruit/Vegetable Expenditures	Yes							Yes	Calculated HSA Rate	Below State Benchmark	CCDP
Overweight (Youth)	Yes							Yes	Maximum Rate for Associated County	Exceeds State Benchmark	CCDP
Colorectal Cancer (ED)	Yes							Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Colorectal Cancer (H)	Yes							Yes	Calculated HSA Rate	Exceeds State Benchmark	VV

Name	HEAL	MH_SA	ACT	BASIC NEEDS	POLL-UT	VIOL	TRAN-SIT	DIS PREV	HSA Value	Benchmark Comparison	Source
Colorectal Cancer (Incidence)	Yes							Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Diabetes (ED)	Yes							Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Diabetes (H)	Yes							Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Food Deserts	Yes							Yes	HSA Intersects Food Desert	Exceeds 25% of ZCTAs	VV
Hypertension (ED)	Yes							Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Hypertension (H)	Yes							Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Park Access	Yes							Yes	Calculated HSA Rate	Below State Benchmark	VV
Food Environment - Fast Food Restaurants	Yes								Calculated HSA Rate	Exceeds State Benchmark	CCDP
Food Environment - Grocery Stores	Yes								Calculated HSA Rate	Below State Benchmark	CCDP
Low Fruit/Vegetable Consumption (Youth)	Yes								Maximum Rate for Associated County	Exceeds State Benchmark	CCDP
Diabetes Mellitus – MORT	Yes								Calculated HSA Rate	Exceeds State Benchmark	VV
Modified Retail Food Environment Index (MRFEI)	Yes								Calculated HSA Rate	Below State Benchmark	VV
Osteoporosis (ED)	Yes								Calculated HSA Rate	Exceeds State Benchmark	VV
Osteoporosis (H)	Yes								Calculated HSA Rate	Exceeds State Benchmark	VV
Life Expectancy at Birth		Yes		Yes					Calculated HSA Rate	Below State Benchmark	VV
Tobacco Expenditures		Yes			Yes			Yes	Calculated HSA Rate	Exceeds State Benchmark	CCDP

Name	HEAL	MH_SA	ACT	BASIC NEEDS	POLL-UT	VIOL	TRAN-SIT	DIS PREV	HSA Value	Benchmark Comparison	Source
Tobacco Usage (Adults and Teens)		Yes			Yes			Yes	Maximum Rate for Associated County	Exceeds State Benchmark	VV
Chronic Lower Respiratory Disease - MORT		Yes			Yes				Calculated HSA Rate	Exceeds State Benchmark	VV
COPD (ED)		Yes			Yes				Calculated HSA Rate	Exceeds State Benchmark	VV
COPD (H)		Yes			Yes				Calculated HSA Rate	Exceeds State Benchmark	VV
Alcohol - Excessive Consumption		Yes				Yes		Yes	County Rate	Exceeds State Benchmark	CCDP
Alcohol - Expenditures		Yes				Yes		Yes	Calculated HSA Rate	Exceeds State Benchmark	CCDP
Liquor Store Access		Yes				Yes		Yes	Maximum Rate for Associated County	Exceeds State Benchmark	CCDP
Substance Abuse (ED)		Yes				Yes			Calculated HSA Rate	Exceeds State Benchmark	VV
Substance Abuse (H)		Yes				Yes			Calculated HSA Rate	Exceeds State Benchmark	VV
Lung Cancer (ED)		Yes						Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Lung Cancer (Incidence)		Yes						Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Access to Mental Health Providers		Yes							County Rate	Below State Benchmark	CCDP
Lack of Social or Emotional Support		Yes							County Rate	Exceeds State Benchmark	CCDP
Mental Health - Poor Mental Health Days		Yes							County Rate	Exceeds State Benchmark	CCDP
Alzheimer's Disease		Yes							Calculated HSA Rate	Exceeds State Benchmark	VV
Chronic Liver Disease and Cirrhosis – MORT		Yes							Calculated HSA Rate	Exceeds State Benchmark	VV

Name	HEAL	MH_SA	ACT	BASIC NEEDS	POLL-UT	VIOL	TRAN-SIT	DIS PREV	HSA Value	Benchmark Comparison	Source
Health Professional Shortage Area - Mental Health		Yes							HSA Intersects Mental Health Shortage Area	Intersects HPSA	VV
Intentional Self Harm (Suicide) - MORT		Yes							Calculated HSA Rate	Exceeds State Benchmark	VV
Mental Health (ED)		Yes							Calculated HSA Rate	Exceeds State Benchmark	VV
Mental Health (H)		Yes							Calculated HSA Rate	Exceeds State Benchmark	VV
Self-Inflicted Injuries (ED)		Yes							Calculated HSA Rate	Exceeds State Benchmark	VV
Self-Inflicted Injuries (H)		Yes							Calculated HSA Rate	Exceeds State Benchmark	VV
Education - School Enrollment Age 3-4			Yes	Yes					Calculated HSA Rate	Below State Benchmark	CCDP
Insurance - Population Receiving Medicaid			Yes	Yes					Calculated HSA Rate	Exceeds State Benchmark	CCDP
Population with Public Insurance			Yes	Yes					Calculated HSA Rate	Exceeds State Benchmark	VV
Uninsured Population			Yes	Yes					Calculated HSA Rate	Exceeds State Benchmark	VV
Low Birth Weight			Yes		Yes				Calculated HSA Rate	Exceeds State Benchmark	VV
Cancer Screening - Mammogram			Yes					Yes	County Rate	Below State Benchmark	CCDP
Cancer Screening - Pap Test			Yes					Yes	County Rate	Below State Benchmark	CCDP
Cancer Screening - Sigmoid/Colonoscopy			Yes					Yes	County Rate	Below State Benchmark	CCDP
Access to Dentists			Yes						County Rate	Below State Benchmark	CCDP
Access to Primary Care			Yes						County Rate	Below State Benchmark	CCDP
Federally Qualified Health Centers			Yes						HSA Calculated Rate	Below State Benchmark	CCDP

Name	HEAL	MH_SA	ACT	BASIC NEEDS	POLL-UT	VIOL	TRAN-SIT	DIS PREV	HSA Value	Benchmark Comparison	Source
Preventable Hospital Events			Yes						County Rate	Exceeds State Benchmark	CCDP
Dental/Oral Diseases (ED)			Yes						Calculated HSA Rate	Exceeds State Benchmark	VV
Dental/Oral Diseases (H)			Yes						Calculated HSA Rate	Exceeds State Benchmark	VV
Health Professional Shortage Area - Dental			Yes						HSA Intersects Dental Shortage Area	Intersects HPSA	VV
Health Professional Shortage Area - Primary Care			Yes						HSA Intersects Primary Care Shortage Area	Intersects HPSA	VV
Infant Mortality Rate			Yes						Calculated HSA Rate	Exceeds State Benchmark	VV
Prenatal Care			Yes						Calculated HSA Rate	Below State Benchmark	VV
Teen Births			Yes						Calculated HSA Rate	Exceeds State Benchmark	VV
Households with No Vehicle				Yes			Yes		Calculated HSA Rate	Exceeds State Benchmark	VV
Children Eligible for Free/Reduced Price Lunch				Yes					Calculated HSA Rate	Exceeds State Benchmark	CCDP
Education – High School Graduation Rate				Yes					County Rate	Below State Benchmark	CCDP
Education - Reading Below Proficiency				Yes					County Rate	Exceeds State Benchmark	CCDP
Food Security - Food Insecurity Rate				Yes					County Rate	Exceeds State Benchmark	CCDP
Food Security - Population Receiving SNAP				Yes					County Rate	Exceeds State Benchmark	CCDP
Housing - Assisted Housing--HUD units				Yes					County Rate	Exceeds State Benchmark	CCDP

Name	HEAL	MH_SA	ACT	BASIC NEEDS	POLL-UT	VIOL	TRAN-SIT	DIS PREV	HSA Value	Benchmark Comparison	Source
Housing - Substandard Housing				Yes					County Rate	Exceeds State Benchmark	CCDP
Violence - School Suspensions				Yes					County Rate	Exceeds State Benchmark	CCDP
Households with housing costs greater than 30% of income				Yes					Calculated HSA Rate	Exceeds State Benchmark	VV
Housing Vacancy Rate				Yes					Calculated HSA Rate	Exceeds State Benchmark	VV
Percent Population 25 or Older Without a High School Diploma				Yes					Calculated HSA Rate	Exceeds State Benchmark	VV
Percent Unemployed				Yes					Calculated HSA Rate	Exceeds State Benchmark	VV
Population 5 Years or Older who speak Limited English				Yes					Calculated HSA Rate	Exceeds State Benchmark	VV
Population in Poverty (Under 100% Federal Poverty Level)				Yes					Calculated HSA Rate	Exceeds State Benchmark	VV
Population Living Near a Transit Stop					Yes		Yes		Percent of HSA ZCTAs that intersect census blocks with centroids greater than abt. 1/2 mile from public transit stops	Exceeds 25% of ZCTAs	VV
Asthma - Prevalence					Yes			Yes	County Rate	Exceeds State Benchmark	CCDP
Asthma (ED)					Yes			Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Asthma (H)					Yes			Yes	Calculated HSA Rate	Exceeds State	VV

Name	HEAL	MH_SA	ACT	BASIC NEEDS	POLL-UT	VIOL	TRAN-SIT	DIS PREV	HSA Value	Benchmark Comparison	Source
										Benchmark	
Malignant Neoplasms (Cancer) - MORT					Yes			Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Pollution Burden Score					Yes			Yes	Percent of HSA ZCTAs that intersect census tract within the top 20% of pollution burden scores in the state	Exceeds 25% of ZCTAs	VV
Transit - Road Network Density					Yes				County Rate	Exceeds State Benchmark	CCDP
Mortality - Homicide						Yes			Calculated HSA Rate	Exceeds State Benchmark	CCDP
Mortality - Motor Vehicle Accident						Yes			Calculated HSA Rate	Exceeds State Benchmark	CCDP
Mortality - Pedestrian Accident						Yes			Calculated HSA Rate	Exceeds State Benchmark	CCDP
Assault (ED)						Yes			Calculated HSA Rate	Exceeds State Benchmark	VV
Assault (H)						Yes			Calculated HSA Rate	Exceeds State Benchmark	VV
Domestic violence/intimate partner violence						Yes			Maximum Rate for Associated Agencies	Exceeds State Benchmark	VV
Major Crimes (Violent Crimes, Property Crimes, Larceny/Theft, Arson)						Yes			Maximum Rate for Associated Agencies	Exceeds State Benchmark	VV
Unintentional Injury (ED)						Yes			Calculated HSA Rate	Exceeds State Benchmark	VV
Unintentional Injury (H)						Yes			Calculated HSA Rate	Exceeds State Benchmark	VV

Name	HEAL	MH_SA	ACT	BASIC NEEDS	POLL-UT	VIOL	TRAN-SIT	DIS PREV	HSA Value	Benchmark Comparison	Source
Commute to Work - Alone in Car							Yes		Calculated HSA Rate	Exceeds State Benchmark	CCDP
Population with Any Disability							Yes		Calculated HSA Rate	Exceeds State Benchmark	VV
Cancer Incidence - Cervical								Yes	County Rate	Exceeds State Benchmark	CCDP
Heart Disease Prevalence								Yes	County Rate	Exceeds State Benchmark	CCDP
High Blood Pressure - Unmanaged								Yes	County Rate	Exceeds State Benchmark	CCDP
STD - HIV Hospitalizations								Yes	County Rate	Exceeds State Benchmark	CCDP
STD - HIV Prevalence								Yes	County Rate	Exceeds State Benchmark	CCDP
STD - No HIV Screening								Yes	County Rate	Exceeds State Benchmark	CCDP
Breast Cancer (ED)								Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Breast Cancer (H)								Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Breast Cancer (Incidence)								Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Cerebrovascular Disease (Stroke) - MORT								Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Chlamydia – Incidence								Yes	Maximum Rate for Associated County	Exceeds State Benchmark	VV
Essential Hypertension & Hypertensive Renal Disease – MORT								Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Gonorrhea – Incidence								Yes	Maximum Rate for Associated County	Exceeds State Benchmark	VV
Heart Disease - MORT								Yes	Calculated HSA Rate	Exceeds State	VV

Name	HEAL	MH_SA	ACT	BASIC NEEDS	POLL-UT	VIOL	TRAN-SIT	DIS PREV	HSA Value	Benchmark Comparison	Source
										Benchmark	
HIV/AIDS (ED)								Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Lung Cancer (H)								Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Prostate Cancer (ED)								Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Prostate Cancer (H)								Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Prostate Cancer (Incidence)								Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
STIs (ED)								Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
STIs (H)								Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Stroke (ED)								Yes	Calculated HSA Rate	Exceeds State Benchmark	VV
Stroke (H)								Yes	Calculated HSA Rate	Exceeds State Benchmark	VV

The qualitative indicators associated with each potential health need category were identified in a crosswalk table. The transcripts from the key informant and community focus group interviews were coded to the qualitative indicators or themes in order to get a better understanding of the specific health issues within the communities that were interviewed. A full list of the qualitative indicators with each potential health need category is displayed below in Table 50.

Table 50: Primary indicators associated with potential health needs

Potential Health Need Category	Qualitative Indicators
Access to High Quality Health Care and Services	• Continuity of care/coordinated care • Cost of care/prescription cost/copays • Culturally sensitive care • Delayed care • Dental/oral health • Distance/transport to care • ER overwhelm/ overutilization • Health care for the undocumented • Health education/ health literacy

Potential Health Need Category	Qualitative Indicators
	• Insurance restrictions/ coverage gaps • Language barriers • Long wait times/limited providers/impacted system • Maternal infant health • Medi-Cal access • Pain management • Patient navigation/referral • Prevention services/preventative care • Primary care • Senior care services • Specialty care
Access to Behavioral Health Services	Mental Health • Comorbidity • Depression-anxiety • Desire for alternative treatment • Elderly-Alzheimer's-dementia • ER/ Hospital • Homelessness • Limited services-lack of capacity • Mental health/substance abuse • Need for culturally sensitive care • Serious mental Illness • Stigma/discrimination • Stress • Suicide • Trauma and/or ACEs Substance Abuse • Alcohol and other drugs • Barriers to accessing services • Co-morbidity • Criminalization of drugs • Geographic-safety concerns • Homelessness • Limited resources/capacity • Methamphetamines-cocaine • Mental health/substance abuse • Opiates • Outreach and education • Parental and pre-Natal Use • Transition aged youth • Tobacco-E cigs
Affordable and Accessible Transportation	• Lack of transport as a barrier to access health care services • Lack of transport as a barrier to access healthy foods • Long distance and difficulty accessing health care services

Potential Health Need Category	Qualitative Indicators
	• No active transport infrastructure • Personal transportation barriers • Public transportation barriers
Basic Needs	Housing • Gentrification/displacement • Housing discrimination • Homelessness/shelter crisis • Lack of affordable housing • Role of public housing agencies • Seniors/aging in place • Substandard housing Food Security • Cost of living/poverty • Food banks, pantries, closets • Lack of quantity and quality of school food • Safety net programs (CalFresh, WIC, Meals on Wheels) • Transportation barriers Economic Security • Loss of safety net benefits • Need for job training resources • Safety net benefits (TANF, CalFresh, WIC) • Stigma/shame of poverty • Unemployment/lack of jobs Education • Differences in K-12 opportunity • Educational attainment (dropouts, GED, higher Ed) • Financial education and literacy • Health education and literacy • High cost of education • Need for cultural sensitivity • School discipline issues
Disease Prevention, Management and Treatment	Asthma • Air pollution/contamination • Anti-smoking laws and regulations • Cost of asthma medications Environmental triggers (dust, mites, cockroaches, mold) • Secondhand smoke (cigarettes/marijuana) • Smoke shops Cancer • Air pollution exposure • Breast cancer • Cancer screening programs • Cervical cancer • Colorectal cancer

Potential Health Need Category	Qualitative Indicators
	• Early detection • Lack of healthy eating and active living opportunities • Lung cancer • Oncology/oncologists • Pesticide exposure • Prevention and education • Prostate cancer • Stomach cancer CVD/Stroke • Congestive heart failure (CHF) • Cost of medication • CVD/Stroke • Diagnosis, management, and treatment • Lack of healthy eating and active living opportunities • Hypertension • Stroke HIV/AIDS/STDs • Diagnosis, management, and treatment of STIs • Incidence/prevalence • Lack of continuity between health systems and public health • Need for reproductive health education • Stigma/discrimination • Vulnerable populations
Healthy Eating and Active Living	• Biking • CalFresh (EBT) and WIC • Community gardens • Cost barriers • Cost of healthy food • Cultural barriers • Need for education and classes • Farmers markets • Food access issues • Food deserts • Food distribution • Gyms • Lack of motivation • Lack of sidewalks or bike lanes • Lack of time • Lack of transportation • Natural environment (trails and rivers) • Perishability of fresh foods • Public parks/pools • Recreation opportunities • Safety

Potential Health Need Category	Qualitative Indicators
	• School physical activity • Technology and screen time • Unhealthy food options • Walking and walkability
Pollution-Free Living and Work Environments	• Air quality • Environmental hazards/toxins (cockroaches, mold, mildew, asbestos) • Respiratory conditions (asthma, COPD, infections, allergies) • Second hand smoke (tobacco and marijuana) • Transportation
Safe, Crime and Violence-Free Communities	• Alcohol abuse • Bullying • Child abuse and trauma • Child Protective Services • Domestic Violence • Drug dealing • Gang violence • Gun and knife violence • Hate crimes • Homicide • Human Trafficking • Motor vehicle accidents • Pedestrian accidents • Prostitution • Rape and sexual assault • Substance Use • Tension with police • Theft

Appendix C: Informed Consent

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Key Informant Informed Consent Form
Gathering Information for a Community Health Needs Assessment (CHNA)

Purpose:
You have been invited to participate in a community health assessment. This assessment will help to inform area leaders on the specific needs of the communities which they serve. We will focus our questions on two main topics: 1) the health status of the community at large, and 2) the factors that help or prevent community members from living a healthy life. The information we gather from you will be combined with that of other interviews and focus groups. We will summarize these findings and report these to local leaders in your area.

Procedures:
The interview will capture your own experiences and opinions about community health issues. Completion of the questionnaire and the interview will take about 1 hour. We will also record and later transcribe the session. All identifying information will be removed from the transcripts and at the end of the project the recording will be destroyed.

Potential Risks or Benefits:
Some of the interview questions may be emotionally charged; otherwise there are no risks that we are aware of to answering the questions presented. There are no direct benefits to participating in this interview.

Participant's Rights:
Both completion of a short questionnaire and participation in this interview are completely voluntary; you may choose to not participate and terminate your involvement at any time.

Confidentiality and Anonymity:
 Should you choose to participate, you will receive a copy of this consent form. The information you provide will only be shared with the project sponsors and associated vendors for the purpose of the CHNA and Public Health Accreditation Board (PHAB) processes. We will list your organization and or job title in the final report and may use quotes from the transcript of your interview; however, these *will not* be associated with your name directly. These forms and any information you provide will be kept in a secure location and there will be no link between the information we collect and this document.

How to obtain Additional Information:
If you have any questions or comments regarding this document, interview or final report please contact: **Anna Rosenbaum,** Senior Project Manager at **Valley Vision (**www.valleyvision.org) 916-325-1630.

I hereby agree to participate in this interview, understand that I will be provided a copy of this consent form for my own records, and acknowledge that my responses will be recorded.

_____   _____
Participant Name (Print)   Interviewer Name (Print)

_____   _____
Participant Signature   Date   Interviewer Signature   Date

Focus Group Informed Consent Form
Gathering Information for a Community Health Assessment

Purpose:
You have been invited to participate in a focus group for a community health needs assessment. This assessment will help to inform area leaders on the specific needs of the communities which they serve. We will focus our questions on two main topics: 1) the general health of the community, and 2) the factors that help or prevent community members from living a healthy life. The information we gather from you will be combined with that of other interviews and focus groups. We will summarize these findings and report these to local leaders in your area.

Procedures:
The focus group will capture your own experiences and opinions about community health issues. Completion of the questionnaire and the focus group will take about 90 minutes. We will also record and later transcribe the session. All identifying information will be removed from the transcripts and at the end of the project the recording will be destroyed.

Potential Risks or Benefits:
Some of the focus group questions may be emotionally charged otherwise there are no risks that we are aware of to answering the questions presented. Benefits include contributing to an important health assessment, along with compensation outlined below.

Participant's Rights:
Both completion of a short questionnaire and participation in this focus group are completely voluntary; you may choose to not participate and terminate your involvement at any time.

Compensation:
For your participation in the focus group you will be given a $10 gift card to a local retail outlet. Gifts cards will be distributed after completion of the focus group. If you are not able to complete the focus group, you will not receive a gift card.

Confidentiality and Anonymity:
Should you choose to participate, you will receive a copy of this consent form. The information you provide and anything you share with us will only be shared with the project sponsors and associate vendors for the purpose of the CHNA and Public Health Accreditation Board (PHAB) processes. We may use quotes from the focus group transcript; however they will not be associated with your name directly. These forms and any information you provide will be in a secure location and there will be no link between the information we collect and this document.

How to obtain Additional Information:
If you have any questions or comments regarding this document, the questionnaire, focus group, or final report please contact: **Anna Rosenbaum,** Senior Project Manager at **Valley Vision (**www.valleyvision.org) 916-325-1630 (office).

I hereby agree to participate in this focus group, understand that I will be provided a copy of this consent form for my own records, and acknowledge that my responses will be recorded.

_____   _____
Participant Name Print   Interviewer Name Print

_____   _____
Participant Signature   Date   Interviewer Signature   Date

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Focus Group Informed Consent – Parent/Guardian
Gathering Information for a Community Health Needs Assessment

Purpose:
Your son/daughter has been invited to participate in a focus group for a community health needs assessment (CHNA). This assessment will help to inform area leaders on the specific needs of the communities which they serve. We will focus our questions on two main topics: 1) the general health of the community, and 2) the factors that help or prevent community members from living a healthy life. The information we gather from your son/daughter will be combined with that of other interviews and focus groups. We will summarize these findings and report these to local leaders in your area.

Procedures:
The focus group will capture their experiences and opinions about community health issues. Completion of the questionnaire and the focus group will take about 90 minutes. We will also record and later transcribe the session. All identifying information will be removed from the transcripts and at the end of the project the recording will be destroyed.

Potential Risks or Benefits:
Some of the focus group questions may be emotionally charged otherwise there are no risks that we are aware of to answering the questions presented. Benefits include contributing to an important health assessment, along with compensation outlined below.

Participant's Rights:
Both completion of a short questionnaire and participation in this focus group are completely voluntary; your son/daughter may choose to not participate and terminate their involvement at any time.

Compensation:
For their participation in the focus group, your son/daughter will be given a $10 gift card to a local retail outlet. Gift cards will be distributed after completion of the focus group. If your son/daughter is not able to complete the focus group they will not receive a gift card.

Confidentiality and Anonymity:
Should your son/daughter choose to participate, they will receive a copy of this consent form. The information they provide and anything they share with us will only be shared with the project sponsors and associated vendors for the purposes of the CHNA and Public Health Accreditation Board (PHAB) processes. We may use quotes from the focus group transcript, however they will not be associated with your son/daughter directly. These forms and any information they provide will be in a secure location and there will be no link between the information we collect and this document.

How to obtain Additional Information:
If you have any questions or comments regarding this document, the questionnaire, focus group, or final report please contact: **Anna Rosenbaum,** Senior Project Manager at **Valley Vision (**www.valleyvision.org) 916-325-1630 (office).

I hereby agree to allow my son/daughter to participate in this focus group and understand that they will be provided a copy of this consent form for their own records, and acknowledge that their responses will be recorded.

_____   _____
Parent/Guardian Name Print   Interviewer Name Print

_____   _____
     Parent/Guardian Signature   Date   Interviewer Signature   Date

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Consentimiento Informado

Acumulando Información para conducir una Evaluación de las Necesidades de Salud de la Comunidad

Objetivo:

Usted ha sido invitado a participar en un grupo de enfoque para la evaluación de las necesidades de la salud de la comunidad. Esta evaluación le ayudará a informar a los líderes de la zona en las necesidades específicas de las comunidades a las que sirven. Nuestras preguntas se concentraran en dos temas principales: 1) la salud general de la comunidad, y 2) los factores que ayudan o que impiden a los miembros de la comunidad vivir una vida saludable. La información que juntamos de usted será combinada con los resultados de otras entrevistas y grupos de enfoque. Vamos a resumir estas conclusiones y reportar éstos resultados a los líderes de su área.

Procedimientos:

El grupo de enfoque captura tus propias experiencias y opiniones sobre temas de la salud de la comunidad Realización de un cuestionario y el grupo de enfoque tomara aproximada mente un hora y media (1 ½). Nos gustaría grabar la sesión y luego transcribir la. Toda la información de identificación será borrada de las transcripciones y al final del proyecto, la grabación será destruida.

Riesgos Potenciales o Beneficios:

Algunas preguntas pueden ser emocionalmente cargadas, a lo contrario, no hay ningún riesgo que estemos consciente al contestar las preguntas presentadas. Los beneficios por su participación en este grupo de enfoque incluye la oportunidad de participar en una evaluación importante y una tarjeta de regalo de 10 dólares (más detalles abajo).

Los Derechos del Participante:

La participación en este grupo de enfoque y en el cuestionario es completamente voluntaria, usted puede decidir a no participar y puede terminar su participación en cualquier momento que usted desea.

Compensación

Recibirá una tarjeta de regalo de $10 para una tienda local por participar en el grupo de enfoque. Después de completar el grupo de enfoque, le daremos la tarjeta de regalo. Si no eres capaz de completar el grupo de enfoque no recibirá tarjeta de regalo.

Confidencialidad y Anonimato

Si usted decide participar, usted recibirá una copia de esta forma de consentimiento. La información que usted nos dará solo será compartida con los patrocinadores del proyecto y vendedores asociados para el propósito de la evaluación y para el proceso de la junta de acreditación de la Salud Publica. Usted no será identificado en ninguna manera, su nombre no aparecerá en ningún documento y sólo el investigador tendrá el acceso a estos documentos. Estas formas y cualquier información coleccionada serán guardadas en una ubicación segura y no habrá ningún enlace entre la información que coleccionamos y este documento.

Como obtener Información Adicional:

Si tienes preguntas en par de esta forma, el cuestionario, el grupo de enfoque o el reporte final, póngase en contacto con **Giovanna Forno,** de **Valley Vision** (www.valleyvision.org) 916-325-1630 (oficina).

Por este medio consiento en participar en el grupo de enfoque y reconozco que mis repuestas serán grabadas. También entiendo que me van a dar una copia de esta forma de consentimiento para mis propios archivos.

Nombre del Participante	Nombre del Entrevistador

Firma del Participante	Fecha	Firma del Entrevistador	Fecha

Appendix D: Key Informant and Focus Group Interview Documents

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Key Informant Questionnaire

Please complete this short questionnaire, which will give us more information about your professional experience, role and expertise working with special populations. Your answers to these questions will be combined with that of other key informants and cannot be used to identify you individually.

1. **What sector do you work in? (Choose only one)**

   ☐ Academic/Research

   ☐ Community Based Organization

   ☐ Health Care - Department/Division: _____

   ☐ Public Health - Department/Division: _____

   ☐ Social Services - Department/Division: _____

   ☐ Other (define): _____

2. **What is your primary job classification? (Choose all that apply)**

   ☐ Administrative or clerical personnel   ☐ Nutritionist

   ☐ Community Health Worker/Promotora   ☐ Patient Navigator

   ☐ Community Organizer/Advocate   ☐ Physician

   ☐ Epidemiologist   ☐ Program Manager/Coordinator

   ☐ Environmental health worker   ☐ Senior Leadership/Upper Management

   ☐ Health Educator   ☐ Social Worker/Case Manager

   ☐ Medical Assistant   ☐ Other (define):

   ☐ Nurse   _____

3. **How would you define the geographic area served by your organization?**

   _____

   _____

4. **Do you work with any of the following vulnerable populations? (Choose all that apply)**

   ☐ Low-Income

   ☐ Medically underserved

   ☐ Racial or ethnic minority (specify): _____

   ☐ Other (specify): _____

   ☐ Other (specify): _____

Thank you for your participation!

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Self-Report Demographic Data Card
Gathering Information for a Community Health Assessment

Please share…
Tell us a little about you….

This questionnaire helps us to gain more information about our community participants. Your answers to the following questions will be confidential and anonymous and cannot be used to identify you personally. Please note completion of this questionnaire is completely voluntary.

For each of the following, please choose <u>ONE</u> that describes you best:

1. **What is your gender identity (example: male, female, transman, transwoman, please specify)?**

   _____

2. **What is your ethnicity?**

   ☐Hispanic/Latino   ☐Not Hispanic/Latino

3. **Please check <u>ONE or MORE</u> racial group(s) that describe you:**

   ☐African American/Black   ☐Native American/Alaska Native
   ☐Asian   ☐White/Caucasian
   ☐Hawaiian Native/Pacific Islander   ☐Other (Specify):_____
   ☐Hispanic/Latino only

4. **What year were you born?** _____

5. **Please check the highest level of school you have completed.**

   ☐ High school graduate (diploma or the   ☐ NOT a high school graduate (diploma or the
   equivalent, for example, GED)   equivalent, for example, GED)

6. **What is your ZIP code of residence (where you live)?**   _____

7. **Do you currently participate in any of the following programs? Choose <u>ALL</u> that apply.**

   ☐ CalFresh (Food Stamps, SNAP, EBT)   ☐ Reduced Price School Meal
   ☐ CalWORKS (TANF)   ☐ Section 8 Public Housing
   ☐ Head Start   ☐ Supplemental Security Income (SSI)
   ☐ Medi-Cal   ☐ Women, Infants, & Children (WIC Program)

8. **Are you <u>CURRENTLY</u> covered by any type of health insurance?**

☐Yes   ☐No

Thank you for your participation!

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Tarjeta de Datos Demográficos
Acumulando Información para conducir una Evaluación de las Necesidades de Salud de la Comunidad

Cuéntanos un poco acerca de usted…
Este cuestionario nos ayudará a obtener más información acerca de nuestros participantes de la comunidad. Tus respuestas serán confidenciales y anónimas y no se pueden utilizar para identificarte. Tu participación en este cuestionario es voluntaria.

Por cada pregunta, por favor elije UNO que te describe mejor:

3. **¿Con cuál genero identificas? (ejemplo: femenina, masculino, transexual, otro)**

_____

2. ¿Cuál es tu raza?

☐ Latino/Hispano   ☐ No Latino/ Hispano

3. Por favor marca <u>UNO o MÁS</u> grupos raciales que te describe:

☐Afroamericano/Negro   ☐Nativo Americano/Nativo de Alaska
☐Asiático   ☐ Caucásico/Blanco
☐Nativo de Hawái/Isleño del Pacifico   ☐ Otro (especifica):_____
☐Solamente Latino/Hispano

4. ¿En qué año naciste? _____

5. Por favor marca el nivel más alto de la escuela que haya completado:

☐ Graduado de la escuela segundaria, (diploma o el equivalente, por ejemplo, el GED)   ☐ No un graduado de la escuela secundaria, (diploma o el equivalente, por ejemplo, el GED)

6. ¿Cuál es tu código postal de residencia (donde usted vive)?_____

7. ¿Participa en alguno de los siguientes programas? Elija <u>TODOS</u> que correspondan:

☐ CalFresh (Cupones De Alimentos, SNAP, EBT)   ☐ Comidas escolares gratis y reducido de precio
☐ CalWORKS (TANF)   ☐ Vivienda interés social
☐ Head Start   ☐ Seguridad de ingreso suplementario (SSI)
☐ Medi-Cal   ☐ Programa Mujeres, bebes y niños (WIC)

7. ¿Está usted cubierto por algún tipo de seguranza de salud?
☐Sí   ☐No

¡Gracias por participar!

Key Informant Interview Guide
Gathering Information for a Community Health Assessment

Good [morning, afternoon, evening]!

My name is [name] and I'm an employee at Valley Vision, a local, nonprofit consulting firm. Today I will be gathering information, thoughts and opinions from you as part of a community health needs assessment that will inform local leaders on the specific health needs of the community you serve.

As a part of the Affordable Care Act, the federal government requires nonprofit hospitals to conduct community health needs assessments every three years, and to use the results of these assessments to implement plans to improve community health. Valley Vision is the organization leading the assessment for the nonprofit hospitals in your area, which include [insert appropriate hospitals].

You've been identified as an individual with significant knowledge about the health of the community you serve. I have several important questions I'd like to ask you; please feel free to respond openly and candidly to every question. You can also refuse to answer any question or stop the interview at any time.

I will be recording our interview to be sure I capture everything you say. Our team will then transcribe the recording and analyze the transcriptions in order to paint a complete picture of the health needs of the community you serve. Although this interview is confidential, we may use quotes from the transcription in the writing of our final report. However, the quotes *will not* be attributed directly to you.

Before we get started I want to ask you to sign an informed consent document. By signing it, you agree to participate in this interview and give us permission to both record and use the recording in the larger needs assessment [introduce informed consent form and get signed before beginning interview].

Objective 1: To understand the community served by the provider or resident.

1. **Please, tell me about the community you serve.**
   - **Follow Up**: What are the specific geographic areas and/or populations served?
   - Probe for:
        Who? Where? Racial/ethnic make-up, physical environment *(urban/ rural, large/small)*

2. **How would you describe the quality of life in the community you serve?**

Objective 2: To identify and prioritize the significant health needs of the community and groups / locations that struggle with health issues the most

3. **Please describe the health of the community you serve.**
   - Probe for:
        What are the biggest health issues and/or conditions that the community struggles with?

4. **Of the health issues you've mentioned, which would you say are the most important or urgent to address?**
    - **Follow up**: How would you <u>rank</u> these health issues in terms of importance?

5. **What specific locations struggle with health issues the most?**
    - **Follow up**: What <u>specific groups</u> in the community struggle with these health issues the most?
    - Probe for:
        o   Socio-demographic make-up (race/ethnic, age, gender, sexual orientation)
        o   Disparities/inequities
        o   Community subgroups
        o   Where do these groups live (area concentration)?

6. **What are the challenges to being healthy for the community you serve?**
   - Probe for challenges/barriers to healthy living on multiple levels:
     - *Individual behavior (Individual/group choices):*
       - Activities or behaviors of specific groups?
       - Attitudes and beliefs of specific groups?
       - Cultural or community norms or beliefs in the community around what it is to be "healthy"?
       - Stress, anxiety and coping strategies of specific groups?
     - *Physical Environment (Physical structure and living conditions):*
       - Sidewalks, building structures, streetlights
       - Transportation routes
       - Places to engage in activity
       - Access to healthy foods
       - Access to preventative services and healthcare
       - Perception of safety

7. **What policies, laws, or regulations prevent the community from living healthy lives?**
   - Probe for:
        Anything you can think of on the local level? The state level? The federal level?

8. **Are you aware of any current or upcoming changes to policies, laws, or regulations that may affect the health of the community?**
   - **Follow up:** What about any upcoming trends, factors, or events that may affect the health of the community?

9. **What resources exist in the community to help people live healthy lives?**
   - Probe for:
     - What are the barriers to accessing these resources?
     - What are gaps in these resources? What resources are missing?

10. **What would you say has been the impact of the Affordable Care Act** [may also be known as Covered California, Obamacare] **on the community you serve?**
    - Probe for:
    - Coverage
    - Access to care
    - Identification of providers
    - Quality of care, etc.
    - Changes in individual health-seeking behaviors

Objective 5: To determine the requisites needed to improve the health of the community.

11. **What is [or who is] needed to improve the health of your community?**

Objective 6: To acquire input from persons representing the broad interests of the community.

12. **Can you recommend 1 or 2 additional people, groups or organizations you think would be <u>most</u> important to speak to about the health of the community?**
    - Probe for:
        - 1 to 2 people, group or organization recommendations

13. **Is there anything else you would like to share with our team about the health of your community [that hasn't already been addressed]?**

Focus Group Guide
Gathering Information for a Community Health Assessment

Good [morning, afternoon, evening]!

We are _____ (name) and _____ (name), from Valley Vision, a local, nonprofit consulting firm. Today we will be gathering information, thoughts and opinions from you as part of a community health needs assessment that will inform local leaders on the specific health needs of the community you live in.

As a part of the Affordable Care Act, the federal government requires nonprofit hospitals to conduct community health needs assessments every three years, and to use the results of these assessments to implement plans to improve community health. Valley Vision is the organization leading the assessment for the nonprofit hospitals in your area, which include [insert appropriate hospitals].

You've been identified as a source of significant knowledge about the health of your community. We have several important questions we'd like to ask you; please feel free to respond openly and candidly to every question. You can also refuse to answer any question or leave the focus group at any time.

We will be recording during this focus group to be sure we capture everything you say. Our team will then transcribe the recording and analyze the transcriptions in order to paint a complete picture of the health needs of you community. Although this interview is confidential, we may use quotes from the transcription in the writing of our final report. However, the quotes *will not* be attributed directly to you.

Before we get started I want to ask you to sign an informed consent document. By signing it, you agree to participate in this interview and give us permission to both record and use the recording in the larger needs assessment [introduce informed consent form and get signed before beginning interview].

1. **Please, tell us generally about the community you live in.**
   - <u>Follow Up</u>: What are the specific neighborhoods?
   - <u>Follow Up</u>: What types of people live there (race, age, legal status)?
     - o Probe: How would you describe your neighborhood to someone who has never been there?
     - o Probe: How would you describe the physical environment? (e.g urban, rural, large/small?)

2. **How would you describe the quality of life in your community?**
   - Probe: What does everyday life look like for most people?
   - Probe: Is life easy or difficult for most people?

Objective 2: To identify and prioritize the significant health needs of the community and groups / locations that struggle with health issues the most

3. **How would you describe the health of the community where you live?**
   - Probe: What are the biggest health issues that people struggle with?
   - Probe: What health issues do you see or hear about from friends and family?

4. **Of the health issues you've mentioned, which would you say are the most important or urgent to address?**
   - <u>Follow up</u>: How would you <u>rank</u> these health issues in terms of importance?
     - o Probe: These are the health issues I heard you mention earlier…which ones would you say are the most important?

5. **What specific neighborhoods or places in your community struggle with health issues the most?**
   - <u>Follow up:</u> What <u>specific groups</u> in the community struggle with these health issues the most?
     - o Probe: Do you see any differences in health by age, race, gender, sexual orientation, legal status?
     - o Probe: Where do these groups live?

Objective 3: To determine the drivers which influence the health status of the community.

6. **What are the challenges to being healthy in your community?**
   <u>Individual Behaviors</u>
   - Probe: Do people engage in healthy or unhealthy behavior where you live?
   - Probe: Are there any social norms or cultural beliefs that make it challenging for people to make healthy choices?
   <u>Physical/Social Environment</u>
   - Probe: Is it easy or hard to make healthy choices in your neighborhood? (E.g. access to healthy foods, places to exercise, access to health care)
   - Probe: Is your neighborhood supportive of health? (E.g. sidewalks, safe streets, safe places to exercise, social supports)

7. **What rules or laws prevent your community from being healthy?**

- Probe: What types of rules or policies at your school or work, or in your neighborhood make it challenging to be healthy?
- Probe: What rules or laws keep people from being healthy at the local level? The state level? The federal level?

8. **Are there changes happening in your community that could affect your health?**
   - Probe: What about any upcoming trends, factors, or events that may affect your health?

Objective 4: To determine opportunities and resources for living healthy in the community.

9. **What resources exist in your community to help people live healthy lives?**
   - Probe: What are the barriers to accessing these resources?
   - Probe: What are gaps in these resources? What resources are missing?

10. **What would you say has been the impact of universal health care coverage** [may also be known as Covered California, Obamacare, ACA] **on your community?**
    - Probe: Has this made a difference for you, your family or your friends?
    - Probe: Is it easier to get health care? Why or why not?
    - Probe: Has this influenced how you use the health care system?

Objective 5: To determine the requisites needed to improve the health of the community.

11. **What is needed to improve the health of your community?**
    - Probe: Is there a particular person that could help improve the health of your community?

12. **Is there anything else you would like to share with our team about the health of your community [that hasn't already been addressed]?**
    - Any other questions that you might have?

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Guía de Grupo de Enfoque

Acumulando Información para conducir una Evaluación de las Necesidades de Salud de la Comunidad

[¡Buenos Días, Buenas Tarde o Buenas Noche!]

Somos _____ (nombre) y _____ (nombre), de Valley Vision, una firma de consulta local sin fines de lucro. Hoy, nos gustaría acumular información, pensamientos y opiniones suyas como parte de una evaluación de las necesidades de salud de tu comunidad que le ayudará a informar a los líderes de la zona en que tú vives en las necesidades de salud específicas.

Como parte del Affordable Care Act, el gobierno requiere evaluaciones cada tres años de las necesidades de salud de los hospitales sin fines de lucro y que utilizan los resultados de estas evaluaciones para implementar planes para mejorar la salud de la comunidad. Valley Vision es la organización que está llevando a cabo las evaluaciones para los hospitales sin fines de lucro en su área.

Usted ha sido identificado como una fuente de conocimiento significativo sobre la salud de su comunidad. Tenemos varias preguntas importantes que nos gustaría preguntarle- por favor responde abiertamente y honestamente a todas las preguntas. Usted también puede rechazar a responder cualquier pregunta o dejar el grupo de enfoque en cualquier momento.

Estaremos grabando durante este grupo de enfoque para asegurarnos que capturamos todo lo que dices. Nuestro grupo luego transcribiría la grabación y analizaría las transcripciones para pintar una imagen completa de las necesidades de salud de tu comunidad. Aunque esta entrevista es confidencial, podemos usar citas de la transcripción cunado escribimos nuestro informe final. Sin embargo, las cotizaciones no serán atribuidas directamente a usted.

Antes de empezar quiero pedirle que firme el documento de consentimiento informado y llenen el cuestionario. Al firmar, usted está de acuerdo de participar en este grupo de enfoque y nos da permiso para grabar y utilizar la grabación para nuestro informe final.

Date:
Organization/Location:
Number of Participants:
HSA represented:

Objetivo 1: para entender la comunidad servido por el proveedor o residente

1. **Por favor, díganme de su comunidad.**
    - Seguimiento: ¿Cuáles son los barrios específicamente
    - Seguimiento: ¿Qué tipos de personas viven allí? (edad, raza, genero, estatus legal)
        o   Prueba para: ¿Cómo describieran su comunidad a alguien que nunca ha estado aquí?
        o   Prueba para: ¿Cómo describieran la ambiente física de su comunidad? *(¿es urbano/ rural, grande/pequeño?)*

2. **¿Cómo describen la calidad de vida en su comunidad?**
        o   Prueba para: ¿Es la vida fácil o difícil para la mayoría de personas?
        o   Prueba para: ¿Cómo experiencias la vida cada día en tu comunidad?

3. **Por favor, describen la salud de la comunidad adonde ustedes viven**
        o   Prueba para: ¿Cuáles son los problemas de salud más grande?
        o   Prueba para: ¿Qué problemas de salud oyes o ves en el trabajo, en la casa, en las escuelas, entre tus amigos/amigas, en tu familia?

4. **¿De los problemas de salud que ya han comentado, cuales son los más importantes de resolver?**
    - Seguimiento: **¿Estos son los problemas de salud que han dijeron... cuales son los más importantes/urgentes de resolver?**

5. **¿Qué grupos específicos (*tipos de gente por edad, raza, genero, estatus legal*) en la comunidad luchan con estos problemas de salud más?**
    - Seguimiento: **¿Qué áreas específicos luchan con problemas de salud lo más?**

        o   Prueba para: Composición socio-demográfica (raza/etnicidad, edad, género, orientación sexual)
        o   Prueba para: Las desigualdades/inequidades
        o   Prueba para:¿Dónde viven estos grupos (concentración)?

Objetivo 3: Para determinar los controladores que influyen la salud de la comunidad**.**

6. **¿Cuáles son las dificultades para ser saludable en la comunidad adonde ustedes viven?**
    - Pruebe para dificultades/barreras a vivir saludable en varios niveles**:**
    - *Comportamiento individual:*
        - ¿Actividades o comportamientos de grupos específicos?
        - ¿Actitudes y creencias de grupos específicos?
        - ¿normas o creencias culturales de la comunidad en torno a lo que es estar "saludable"?
            ▪   ¿Estrés, ansiedad y estrategias de afrontamiento de grupos especifico?
    - *Ambiente físico (estructura física y las condiciones del ambiente):*
        - Aceras, estructuras de construcción, luces de la calle
        - Rutas de transporte

- Lugares para participar en actividades/deportes
- Acceso a alimentos saludables
- Acceso a servicios preventivos y servicios de salud
- Percepción de seguridad

7. **¿Qué tipos de leyes, reglas, o prácticas impiden su comunidad de vivir saludable?**
   - Prueba para: ¿Qué tipos de leyes, políticas, o prácticas en sus trabajos, barrios o en las escuelas, lo hace difícil vivir saludable?

8. **¿Vienen cambios en la comunidad adonde usted vive que podría afectar tu salud?**
   - Prueba: ¿Hay modas, factores o eventos que vienen a la comunidad que podría afectar tu salud?

Objective 4: To determine opportunities and resources for living healthy in the community.
Objetivo 4: Para determinar oportunidades y recursos para un vida saludable en la comunidad.

9. **¿Qué recursos existen en la comunidad para ayudar las personas vivir saludable?**
   - Prueba para: ¿Cuáles son las dificultades/barreras para participar en estos recursos?
   - Prueba para: ¿Qué se falta en estos recursos?
   - Prueba para: ¿Qué recursos faltan?

10. **¿La Affordable Care Act ha impactado la comunidad adonde ustedes viven?** [también se conoce como Covered California, Obamacare]
   - Prueba para: ¿Cómo ha impactado la comunidad?
   - ¿Si no, porque no impacto la comunidad?

Objective 5: To determine the requisites needed to improve the health of the community.
Objetivo 5: Para determinar los recursos necesarios para mejorar la salud de la comunidad

11. **¿Qué es necesario para mejorar la salud de tu comunidad?**
   - <u>Seguimiento</u>**: ¿Hay algún tipo de persona que podría ayudar mejorar la salud de la comunidad?**

12. **¿Hay algo más que les gustaría compartir con nosotros la salud de su comunidad?**
   - **Seguimiento: ¿Hay preguntas?**

About the CHNA

The 2016 Community Health Needs Assessment (CHNA) is a collaborative project that looks at the health of Solano County. The three nonprofit hospital systems in the region (Kaiser Permanente, NorthBay Healthcare and Sutter Health) and Solano County Public Health, in partnership with the Solano Coalition for Better Health, are working together to conduct a health assessment of the communities they serve. The assessments are then used by the hospital systems to develop plans to improve the health of these communities.

The CHNA Reports

Each CHNA report includes:
* A description of the health of the community served by a hospital facility;
* The health issues within the community and the factors contributing to those health issues;
* The areas and communities that are most affected by these health issues;
* The health needs that are most important to improve overall health for the community;
* Potential resources and services that are available to improve community health.

Previous CHNA reports are available online at http://www.healthylivingmap.com (see 2013 CHNA Reports), and the 2016 reports will be available in the Fall of 2016.

How the Project Works

To get information about the health of the community, we talk to many different groups of people including medical providers, public health workers, community organizations, and residents. We ask people to share information with us about: (1) the health issues they see and experience in their communities; (2) the challenges and opportunities to be healthy in their communities; and (3) the resources that may or may not be available to help people live healthy lives. We then look for patterns or themes in what we hear from the community and identify the priority health needs to be included in the CHNA reports. The reports are then used to help the hospital systems decide which community services and programs to support.

About Us

Valley Vision is an organization that works on economic, environmental and social issues. Our vision is to help create a healthy region for all generations through learning about the community, working with other organizations and helping to lead teams of people. We have worked on CHNA reports for the Sacramento region since 2007.

The Team

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Project Sponsors

| Kaiser Permanente | Sutter Health | Solano Coalition for Better Health |
| NorthBay Healthcare | Solano Co. Public Health | |

Appendix E: List of Key Informants

	Organization	Number of Participants	Area of Expertise	Population(s) Serviced	Date
1	Solano County Public Health Department	1	Public health; health care services	County health department representative	7/7/15
2	Children's Network of Solano County	1	Social services; continuity and coordination of care	Represents minority, underserved, and low-income children, parents and families	7/7/15
3	Circle of Friends	1	Community-based organization; mental health	Represents minority, medically underserved, low income homeless and mental health population	7/13/15
4	Solano County Behavioral Health Department	1	Behavioral health services	County behavioral health department representative	7/28/15
5	Planned Parenthood of Northern California	2	Service provider; health care services	Represents minority, underserved, and low income women of all ages	8/7/15
6	Solano County Department of Health and Human Services	2	Health care; nutrition services;	County health department representative	8/11/15
7	Mission Solano	1	Community-based organization; homeless services	Represents low income and medically underserved homeless population in Solano County	8/14/15

	Organization	Number of Participants	Area of Expertise	Population(s) Serviced	Date
8	Vacaville Family Resource Center (FRC); Fairfield/Suisun City FRC; Vallejo FRC; Rio Vista FRC; Benicia FRC; Children's Network of Solano County	8	Community-based organization	Represents low-income, minority and medically underserved families in Solano County	8/19/15
9	Solano County Public Health (Health Education)	1	Health education; social services	County health department representative	10/1/15
10	Vallejo Housing Authority	1	Section 8 and affordable housing options and support	Represents low-income, minority and medically underserved people in the City of Vallejo	10/1/15
11	La Clinica de la Raza; Benicia Community Action Council; Partnership Health Plan	5	Community-based organization; health care services; Medi-Cal	Represents low-income, minority and medically underserved people in Solano County	10/1/15

Appendix F: List of Focus Groups

	Location	Date	Number of Participants	Demographic Information
1	Kaiser Permanente Vallejo Medical Center	7/31/15	22	Youth from multiple school districts in Solano County; minority; 16 – 18 years' old
2	Circle of Friends	8/28/15	10	Homeless, mental health minority, and medically underserved population
3	Parent Leadership Training Institute (PLTI) Leadership Program	8/27/15	2	Parents, minority, low-income and medically underserved population
4	Dixon Migrant Community Center	10/7/15	22	Migrant, minority, medically underserved adults in the Dixon community
5	Solano County Health and Social Services	10/22/15	7	Vallejo; Filipino; adults
6	Solano Pride	11/23/15	4	LGBTQ, transgender, adults, medically underserved, and minority population

Appendix G: Resources Potentially Available to Meet Identified Health Needs

Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent-Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution-free Communities
AA, Al-Anon, Al-ateen - Solano North	Vacaville	95688	x							
AIDS Prevention & Care- Solano County AIDS Community Education Program	Fairfield	94533				x				
Aldea Children and Family Services	Fairfield	94533	x					x		
Alternative Family Services	Vallejo	94590	x					x		
Amador Street Hope Center - Food Bank	Vallejo	94590						x		
American Cancer Society	Suisun City	94585					x		x	
Archway Recovery Services	Fairfield	94533	x							
ARC-Solano (Association for Retarded Citizens) - Solano Network of Care	Vallejo	94590	x						x	

Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent- Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution- free Communities
Area Agency on Aging	Vallejo	94590						x	x	
Baby First Solano	Vallejo	94590	x				x		x	
Bay Area Services Network (BASN)- Solano County Department of Mental Health	Fairfield	94533	x							
Benicia Community Action Council	Benicia	94510	x				x	x		
Blood Center of the Pacific: Community Presbyterian Church	Vallejo	94591						x		
Boys and Girls Club- Travis Youth Center	Travis AFB	94535	x	x	x			x	x	
Boys and Girls Club- Trower Center	Vacaville	95688	x	x	x			x	x	
Caminar, Inc.	Vallejo	94590	x					x	x	
Carquinez Counseling Center	Vallejo	94590	x							
Casa of Solano County	Fairfield	94533			x			x		

Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent-Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution-free Communities
Catholic Social Services of Solano County	Vallejo	94590	x					x		
Child Haven, Inc.	Fairfield	94533	x		x					
Children in Need of Hugs	Suisun City	94585						x	x	
Children's Nurturing project	Fairfield	94533	x		x					
Christian Help Center in Vallejo	Vallejo	94590						x		
Church On The Hill - Vallejo Dream Center	Vallejo	94591						x		
Circle of Friends	Fairfield	94533	x				x	x		
City of Fairfield Housing Authority	Fairfield	94533						x		
City Of Vacaville Youth Services: Vacaville High School	Vacaville	95688	x							
Community Action North Bay (CAN-B)	Fairfield	94533						x		
Community Medical Centers	Vacaville	95687				x			x	
Crossroads Christian Church	Vacaville	95688	x							
DART Paratransit-Fairfield-Suisun	Fairfield	94533					x			

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Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent-Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution-free Communities
Transit (FAST)										
Delta Intergroup of Alcoholics Anonymous - Serving Rio Vista	Rio Vista	94571	x							
Disabled American Veterans- Vallejo Chapter (21)- Solano Network of Care	Vallejo	94591						x	x	
Dixon Family Resource Center	Dixon	95620	x				x	x		
Dixon Migrant Farm Labor Camp	Dixon	95620						x		
Dungarvin California	Vacaville	95688	x				x			
Emergency Medical Services- Solano County	Fairfield	94533							x	
Fairfield Adult Recreation Center- City of Fairfield	Fairfield	94533		x				x	x	
Fairfield Christian Reformed Church	Fairfield	94533						x		
Fairfield Family Resource Center	Fairfield	94533	x						x	

Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent-Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution-free Communities
Fairfield Health Center- Planned Parenthood	Fairfield	94533	x						x	
Fairfield WIC Clinic	Fairfield	94533		x					x	
Fairfield Youth Coalition	Fairfield	94533			x					
Fairfield-Suisun Community Action Council, Inc.	Fairfield	94533						x		
Faith PAC (Partners Against Crime)	Fairfield	94533			x			x		
Family Health Services- Solano County	Vacaville	95688							x	
Fighting Back Partnership	Vallejo	94590	x		x			x		
First 5 Solano- Children & Families Commission	Fairfield	94533							x	
First Baptist Church	Fairfield	94533						x		
Florence Douglas Senior Center - Activities	Vallejo	94590						x		
Food Bank of Contra Costa and	Fairfield	94533		x				x		

Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent-Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution-free Communities
Solano County										
For A Child's H.E.A.R.T.	Vallejo	94591	x					x		
Genesis House	Vallejo	94591	x					x		
Global Center for Success	Vallejo	94592	x	x		x		x	x	
Head Start Program	Fairfield	94533	x	x				x		
Head Start Program	Dixon	95620	x	x				x		
Head Start Programs	Vacaville	95687	x	x				x		
Head Start Programs	Vallejo	94589	x	x				x		
Healthy Partnerships	Fairfield	94533	x							
Healthy Partnerships	Vacaville	95688	x							
Heather House	Fairfield	94533	x					x		
Heritage Home	Fairfield	94534						x	x	
Heritage Home	Vallejo	94591						x	x	
House of Acts	Vallejo	94590	x					x	x	
Kaiser Permanente - Bethel Health Center	Vallejo	94591		x					x	

Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent-Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution-free Communities
Kaiser Permanente Educational Theatre Program (ETP)	Vacaville	95688		x					x	
Kaiser Permanente Fairfield Medical Offices	Fairfield	94533				x			x	
Kaiser Permanente L.A.U.N.C.H. (High School Summer Internship Program)	Fairfield	94533						x		
Kaiser Permanente L.A.U.N.C.H. (High School Summer Internship Program)	Dixon	95620						x		
Kaiser Permanente L.A.U.N.C.H. (High School Summer Internship Program)	Vacaville	95688						x		
Kaiser Permanente	Vallejo	94589						x		

Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent- Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution- free Communities
L.A.U.N.C.H. (High School Summer Internship Program)										
Kaiser Permanente Vacaville Medical Offices	Vacaville	95688	x	x					x	
Kaiser Permanente Vallejo Medical Center	Vallejo	94589							x	
Katargeo, Inc.	Vallejo	94589	x							
La Clinica de La Raza - Dental	Vallejo	94590							x	
La Clinica de La Raza - North Vallejo	Vallejo	94589	x						x	
La Clinica de La Raza- Great Beginnings Prenatal Clinic	Vallejo	94589	x						x	
Meals on Wheels of Solano County	Suisun City	94585						x		
MedMark Treatment Centers	Fairfield	94533	x							
MedMark Treatment Centers	Vallejo	94590	x							

Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent-Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution-free Communities
Mission Solano	Fairfield	94533						x	x	
Mission Solano: Bridge to Life Center	Fairfield	94533	x					x		
Mission Solano: Community Outreach Center	Fairfield	94533						x	x	
Mission Solano: Social Enterprises	Fairfield	94533						x		
NAACP	Vallejo	94591						x		
Narcotics Anonymous - Solano County	Fairfield	94533	x							
National Alliance on Mental Illness (NAMI) of Solano County	Fairfield	94533	x							
New Dawn Vallejo- iBall (a.k.a Late Night Basketball Programs)	Vallejo	94590		x	x				x	
NorthBay Cancer Center	Fairfield	94533		x					x	
NorthBay Medical Center	Fairfield	94533	x	x		x			x	
Opportunity House	Vacaville	95688						x		

Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent-Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution-free Communities
Pharmatox, Inc.	Fairfield	94533	x							
Rio Vista CARE	Rio Vista	94571	x							
Rio Vista Family Resource Center	Rio Vista	94571	x				x	x		
Rio Vista Food Pantry	Rio Vista	94571						x		
SafeQuest Solano	Fairfield	94533	x		x			x		
Second Baptist Church	Vallejo	94591						x		
Shamia Recovery Center	Vallejo	94590	x							
Solano Asthma Coalition	Fairfield	94533				x				x
Solano Coalition for Better Health	Suisun City	94585						x	x	
Solano Coalition for Better Health-SKIP (Solano Kids Insurance Program)	Suisun City	94585							x	
Solano Community College	Fairfield	94534						x		
Solano Community College	Vacaville	95688						x		
Solano County Dental Clinic-	Vacaville	95688							x	

Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent-Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution-free Communities
Mobile Dental Van										
Solano County Department of Parks and Recreation	Fairfield	94533				x			x	
Solano County Department of Public Health- Communicable Disease Control Program	Fairfield	94533							x	
Solano County Department of Public Health- Emergency Medical Services	Fairfield	94533	x					x		
Solano County Department of Public Health- Health Education & Community Resources	Fairfield	94533		x						
Solano County Department of Public Health- Health Promotion & Community Wellness- Safe	Fairfield	94533				x			x	

Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent-Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution-free Communities
Routes to School Solano										
Solano County Department of Public Health- Maternal, Child & Adolescent Health	Fairfield	94533							x	
Solano County Department of Public Health- Maternal, Child & Adolescent Health- Baby First Solano- Healthy Families America Program	Fairfield	94533							x	
Solano County Department of Public Health- Maternal, Child & Adolescent Health- Black Infant Health Program	Fairfield (Must reside in Vallejo to participate)	94533	x			x		x	x	
Solano County Department of Public Health- Maternal, Child & Adolescent	Fairfield	94533						x	x	

Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent-Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution-free Communities
Health- Nurse-Family Partnership Program										
Solano County Department of Public Health- Nutrition Services Program	Fairfield	94533			x				x	
Solano County Department of Public Health- Nutrition Services Program- Nutrition Education & Obesity Prevention	Fairfield	94533							x	
Solano County Family Health Services	Vallejo	94590	x	x					x	
Solano County Family Health Services- Adult Primary Care Services	Fairfield	94533		x		x			x	
Solano County Family Health Services- Dental	Fairfield	94533							x	

Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent-Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution-free Communities
Clinic										
Solano County Health and Social Services Department- CalFresh Food Stamps	Fairfield	94533		x				x		
Solano County Mental Health Services	Fairfield	94533	x							
Solano County- Suisun Family Resource Center	Suisun City	94585	x				x	x		
Solano County- Vallejo Family Resource Center	Vallejo	94590	x				x	x		
Solano County- Benicia Family Resource Center	Benicia	94510	x				x	x		
Solano Hearts United	Fairfield	94534						x		
Solano Pride Center	Fairfield	94533	x					x		
Solano/Napa Habitat for Humanity	Fairfield	94534						x		
Sparkpoint Fairfield	Fairfield	94533						x		

Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent-Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution-free Communities
Sparkpoint Vallejo	Vallejo	94589						x		
St. Mark's Lutheran Church	Fairfield	94533						x		
St. Mary's Catholic Church	Vacaville	95688						x		
St. Paul's United Methodist Church	Vacaville	95688	x							
Sutter Fairfield Medical Campus	Fairfield	94534				x			x	
Sutter Medical Plaza	Vacaville	95688				x			x	
Sutter Solano Medical Center	Vallejo	94589				x			x	
The California Maritime Academy	Vallejo	94590						x		
The Children's Network of Solano County	Fairfield	94533	x	x					x	
The Children's Network of Solano County- Earn it! Keep It! Save It! Solano	Fairfield	94533						x		
The Children's Network of Solano County- Parent Leadership Training Institute	Fairfield	94533		x					x	

Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent-Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution-free Communities
(PLTI)										
The Father's House	Vacaville	95688	x							
The Salvation Army	Vallejo	94590	x				x	x		
Touro University Student-Run Free Clinic	Vallejo	94590		x		x			x	
Touro University- Teen Life Conference	Vallejo	94592		x					x	
Vaca FISH - Bethany Lutheran Church	Vacaville	95688						x		
Vacaville Community Services Department	Vacaville	95688		x						
Vacaville Family Resource Center	Vacaville	95688	x				x	x		
Vacaville Unified School District- After-School Enrichment	Vacaville	95687		x					x	
Vacaville WIC Clinic	Vacaville	95688		x						

Resource/ Organization Name	Service Site Location	ZIP	Access to Behavioral Health Services	Healthy Eating and Active Living	Safe, Crime and Violent-Free Communities	Disease Prevention, Management and Treatment	Access to Affordable and Reliable Transportation	Basic Needs	Access to High Quality Health Care and Services	Pollution-free Communities
Vacaville Youth Roundtable	Vacaville	95688			x					
Vallejo Community Change Coalition	Vallejo	94590			x					
Vallejo Health Center- Planned Parenthood	Vallejo	94590		x					x	
Vallejo Open MRI Center	Vallejo	94591							x	
Vallejo USD- Full Service Community Schools	Vallejo	94592	x	x	x			x		
Vallejo WIC Clinic	Vallejo	94590		x				x	x	
Voces Unidas Solano	Fairfield	94533						x		
Workforce Investment Board of Solano County	Fairfield	94534						x		
Youth & Family Services	Fairfield	94534	x							
Youth and Family Services	Vallejo	94590	x							
Youth Takin' On Tobacco (YTOT)	Vacaville	95688	x							

Additional Assets	Resource Guides
	211 Solano http://211bayarea.org/solano/
	Solano Network of Care http://solano.networkofcare.org/

Additional Assets	Community Assets *Reported in Key Informant Interviews and Focus Groups*
	After school programs
	Churches and faith-based organizations
	Farmer's markets

Sources: Primary data from community input (key informant and community member focus group interviews), the CHNA 2013 Resource Section, and organizations that contributed to the 2016 CHNA process.