2012-2013
Community Benefit Plan

NORTHBAY MEDICAL CENTER – FAIRFIELD
NORTHBAY VACAVALLEY HOSPITAL – VACAVILLE

NORTHBAY HEALTHCARE MISSION

NorthBay Healthcare began more than 50 years ago as the dream of community leaders committed to public service. These leaders initiated a fund drive that built Intercommunity Memorial Hospital, Solano County's first 24-hour health care facility. That hospital grew to become NorthBay Medical Center, and NorthBay VacaValley Hospital followed in 1987 after a successful $1.2 million community fund raising project.

To solidify the spirit of public service that became the foundation of NorthBay Healthcare, the original hospital's founding fathers drafted a mission statement that the organization serves as a community resource to ensure that the acute care needs of local residents were met. Of course, health care has changed dramatically in the last 50 years, and the shift to managed care and other market pressures demand that health care organizations provide more to their community than acute care services alone. NorthBay Healthcare strives to offer our community a continuum of services, from education and prevention to advanced hospital based specialty care.

The NorthBay Healthcare board of directors adopted a mission statement in the fall of 2002 (and reconfirmed it in 2010) that is simple, yet ambitious and essential to the well-being of the community we serve.

NorthBay Healthcare Mission:
Compassionate Care, Advanced Medicine, Close to Home

As a part of our mission, NorthBay Healthcare developed and began implementing a community benefit plan in 1988. The organization's response to the Senate Bill 697 reporting requirement is a part of NorthBay Healthcare's long history of community benefit initiatives.

THE COMMUNITY BENEFIT PLAN PROCESS

Our Methods for Meeting Our Goals

NorthBay Healthcare is committed to improving the health of the Solano County community. To augment our independent efforts, NorthBay Healthcare also pursues its mission through participation in the Solano Coalition for Better Health. Our board of directors understands that medical care is not the only factor that influences community health. Adequate housing and nutrition, education, employment and a feeling of hope and well-being also impact community wellness. By working with the Coalition, NorthBay Healthcare is able to reach beyond the walls of our facilities and positively affect a number of community health needs, in addition to medical care.

Through the Coalition, NorthBay Healthcare works collaboratively with a network of other community organizations. We are able to offer an array of healthcare services -- our area of expertise -- and benefit from the expertise of others in addressing broader social issues. As a founding member of the Coalition, NorthBay Healthcare and our board of directors play an integral role in the governance, funding and implementation of Coalition community health improvement projects. Because of this involvement, many of NorthBay Healthcare's community benefit goals and objectives are planned and completed through the Coalition.

HISTORY OF THE SOLANO COALITION FOR BETTER HEALTH

From Crisis Came Innovation and Success

The crisis that launched the Solano Coalition for Better Health occurred in 1988. A much-needed primary care clinic in a low-income Vallejo neighborhood was in danger of closing. A small group of local physicians, government officials and hospital administrators – including NorthBay Healthcare administrative staff – met to stave off the closure. This meeting proved to be a success, and their efforts to preserve an under-funded community clinic grew to become the Solano Coalition for Better Health. With the Coalition, the local health, government and social services communities created a vehicle that enabled them to begin addressing the complex economic, social and historical events that are transforming communities and health care delivery systems around the nation, including our own.

As the Coalition matured into a 501-C-3 corporation, it became the meeting ground for people interested in improving the health status of Solano County residents. The Coalition's membership then grew to include representatives from city and county governments, each of Solano County's private health care systems, the Medical Society, Kaiser Permanente, community leaders, non-profit agencies, business leaders and community advocates. With this broad-based membership, the Coalition developed a vision of community health that extended to social services, health promotion, public protection, employment and education.

In July 2004, NorthBay Healthcare and its partners, Sutter Solano and Kaiser, were awarded the American Hospital System's NOVA award for exceptional community service and partnerships in recognition of the organizations accomplishments through their participation in the Coalition for Better Health.

SOLANO COALITION FOR BETTER HEALTH

MISSION

Since its inception in 1988, and reaffirmed in 2005, the Coalition's mission has been and remains "to promote the health and quality of life of communities, neighborhoods, and people of Solano County by providing leadership, focusing resources, and developing partnerships." The Coalition's vision is to become "a nationally recognized model of public and private partnerships creating systems change in the provision of care and services to promote and maintain the health and safety of the people and their communities." The Eight Core Values of the Coalition are collaboration, diversity, innovation, outcomes-driven, awareness, initiative, individual responsibility and commitment.

NEEDS ASSESSMENT

In the spirit of collaboration and to ensure local health resources are coordinated and used most effectively, NorthBay conducts its Needs Assessment and resource evaluation with the broad coalition of county health organizations that are part of the Solano Coalition for Better Health (the Coalition). The Coalition includes:

- NorthBay Healthcare
- Sutter Health
- Kaiser Permanente
- The Partnership HealthPlan of California (the local Medi-Cal managed care plan)
- The Solano County Department of Health and Social Services

- The Community Clinic Alliance
- Solano County Superintendent of Schools
- The Solano County Medical Society
- Solano Regional Medical Group
- Touro University
- Representatives from Solano County's cities, employers, elected representatives and social services and religious organizations.

NorthBay Healthcare has played a leadership role in the Coalition from the group's inception, with NorthBay's commitment established by our board of directors.

Solano County's three hospitals have collaborated among themselves and with others to conduct a joint community health assessment since 1995. Rather than conducting a broad based assessment where the data change little from study to study, the hospital partners, the Coalition and Solano County have chosen instead to study a particular aspect of community health in depth in each of their triennial health assessments. The 2007 assessment focuses on the healthcare safety net in Solano County and a follow-up study in 2010 examining the resources available in the county to care for those with chronic and persistent mental illness.

The purpose of the assessment was to understand the characteristics of the uninsured and underinsured and how this population has changed over time and then to examine the strengths and vulnerabilities of the public and private healthcare providers in Solano that care for the uninsured and underinsured.

A Community Health Needs Assessment

of the

Solano County Service Area

Conducted on the behalf of

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

Conducted by:
Valley Vision, Inc.

March 2013

Acknowledgements

The community health assessment research team would like to thank all those that contributed to the community health assessment described herein. First, we are deeply grateful for the many key informants that gave of their time and expertise to inform both the direction and outcomes of the study. Additionally, many community residents volunteered their time as focus group participants to give our research team a first-hand perspective of living in the communities of the Solano County Health Service Area with limited or no access to basic healthcare services. Last, we are very grateful to the members of the community health needs assessment workgroup, which included representatives from the Solano Coalition for Better Health, Solano County Public Health Department, Community Clinic Consortium, and La Clinica. These members have volunteered and continue to volunteer their time to improve the health and wellbeing of our community's most vulnerable residents.

EXECUTIVE SUMMARY

Every three years nonprofit hospitals are required to conduct community health needs assessments (CHNA) and use the results of these to develop community health improvement implementation plans. These requirements are imposed on virtually all non-profit hospitals by both state and federal laws.

Beginning in early 2012 through February 2013, Valley Vision, Inc. completed an assessment of the health needs of residents living in the Solano County Health Service Area (HSA).For the purposes of the assessment, a health need was defined as: "a poor health outcome and its associated driver." A health driver was defined as: "a behavioral, environmental, and/or clinical factor, as well as more upstream social economic factors, that impact health."

The objective of the CHNA was:

> *To provide necessary information for Kaiser Permanente's, NorthBay Healthcare's, and Sutter Health Sacramento Sierra Region's community health improvement plans, identify communities and specific groups within these communities experiencing health disparities, especially as these disparities relate to chronic disease, and further identify contributing factors that create both barriers and opportunities for these populations to live healthier lives.*

A community-based participatory research orientation was used to conduct the assessment, which included both primary and secondary data. Primary data collection included input from members of the hospitals, Solano County, the Solano Coalition for Better Health, and other community-based organizations within the HSA, expert interviews with 17 key informants and five focus group interviews with 89 community members. In addition, a community health assets assessment collected data on nearly 60assets in Solano County. Secondary data used included health outcome data, socio-demographic data, and behavioral and environmental data at the ZIP code or census tract level. Health outcome data included emergency department (ED) visits, hospitalization, and mortality rates related to heart disease, diabetes, stroke, hypertension, COPD, asthma, and safety and mental health conditions. Socio-demographic data included data on race and ethnicity, poverty (female-headed households, families with children, people over 65 years of age), educational attainment, health insurance status, and housing arrangement (own or rent). Further, behavioral and environmental data helped describe general living conditions of the HSA such as crime rates, access to parks, availability of healthy food, and leading causes of death.

Analysis of both primary and secondary data revealed six specific *Communities of Concern* living with a high burden of disease in Solano County. These six communities had consistently high rates of negative health outcomes that frequently exceeded county, state, and Healthy People 2020 benchmarks. They were confirmed by experts as areas prone to experiencing poorer health outcomes relative to other communities in the HSA. These communities of concern are noted in the Figure 1 below.

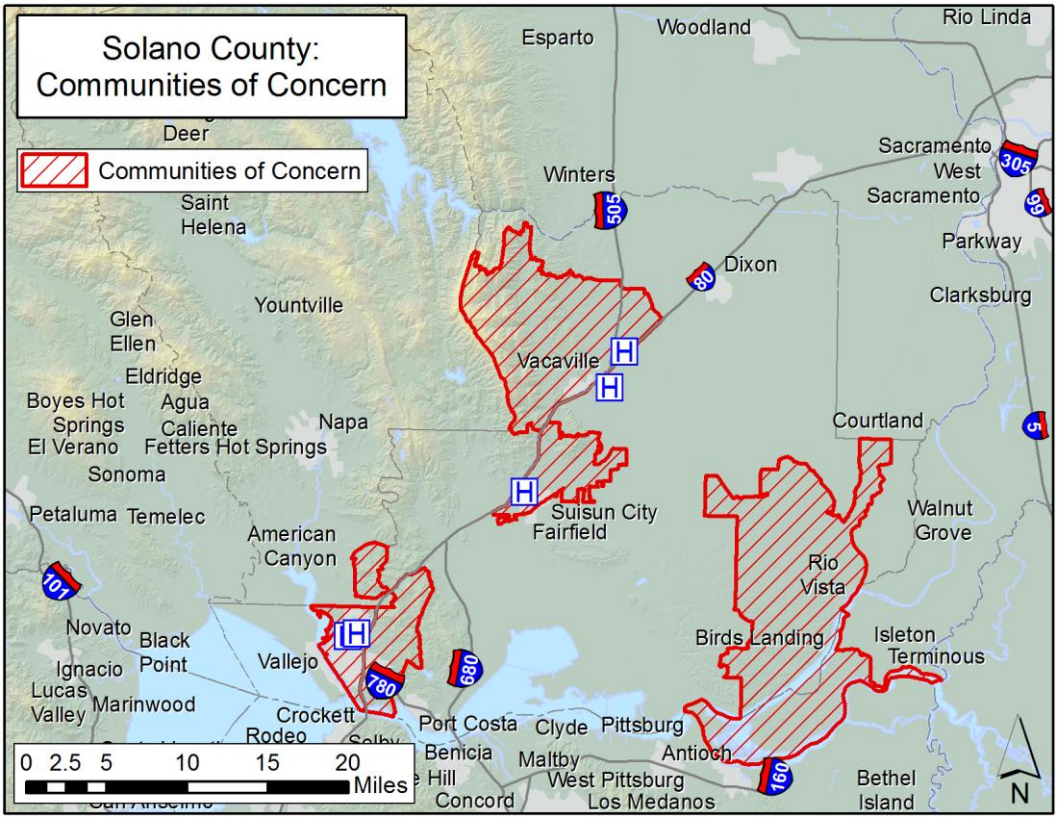

Figure 1: Map of Solano County Communities of Concern

Health Outcome Indicators

Age-adjusted rates of ED visits and hospitalization due to heart disease, diabetes, stroke and hypertension were drastically higher in these ZIP Codes compared to other ZIP Codes in the HSA. In general, Blacks and Whites had the highest rates for these conditions compared to other racial and ethnic groups.

Environmental and Behavioral Indicators

Analysis of environmental indicators showed that many of these communities had conditions that act as barriers to active lifestyles, such as elevated crime rates and a traffic climate that is unfriendly to bicyclists and pedestrians. Furthermore, these communities frequently had higher percentages of residents that were obese or overweight. Access to healthy food outlets was limited, while the concentration of fast food and convenience stores were high. Analysis of the health behaviors of these residents also show many behaviors that correlate to poor health, such as having a diet that is limited in fruit and vegetable consumption.

After examining these findings with those of the qualitative data (key informant interviews and focus groups), a consolidated list of health needs of these communities was compiled. The detailed list of priority health needs, including a description of unwanted health outcomes and associated drivers, can be found in Appendix G.

Priority health needs for Solano County HSA

1. Limited access to healthy foods
2. Personal safety
3. Lack of or limited access to health education
4. Limited access to follow-up treatment and specialty care
5. Transportation
6. Lack of or limited access to dental care
7. Limited access to medications and prescription drugs
8. Limited places to walk, bike, exercise, or play
9. Limited places and social space for civic engagement
10. Lack of preventive services and community programs

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Introduction

In 1994, SB697 was passed by the California legislature. The legislation states that hospitals, in exchange for their tax-exempt status, "assume a social obligation to provide community benefits in the public interest."[1] The bill legislates that hospitals conduct a community health needs assessment (CHNA) every three years. Based on the results of this assessment, hospitals must develop a community benefit plan detailing how they will address the needs identified in the CHNA. These plans are submitted to the *Office of Statewide Health Planning and Development* (OSHPD), and are available to the public for review. The state law exempted some hospitals from the requirement, such as small, rural hospitals and hospitals that are parts of larger educational systems.

In early 2010, the Patient Protection and Affordable Care Act was enacted. Similar to SB697, the law imposes similar requirements on nonprofit hospitals, requiring they conduct CHNAs at a minimum of every three years. Results of these assessments are used by hospital community benefit departments to develop community health improvement implementation plans. Nonprofit hospitals are required to submit these annually as part of their Internal Revenue Service (IRS) Form 990. Unlike California's SB697, the federal law extends the requirements to virtually all hospitals operating in the U.S., defining a "hospital organization" as "an organization that operates a facility required by a State to be licensed, registered, or similarly recognized as a hospital," and "any other organization that the Secretary determines has the provision of hospital care as its principal function or purpose constituting the basis for its exemption under section 501(c)(3)."[2]

In accordance with these legislative requirements, Kaiser Permanente, NorthBay Healthcare, and Sutter Health Sacramento Sierra Region commissioned Valley Vision, Inc. to conduct a CHNA of Solano County. The CHNA was conducted through a participatory process led by Valley Vision, Inc. in coordination with the Solano Coalition for Better Health.

ASSESSMENT COLLABORATION AND ASSESSMENT TEAM

A collection of three nonprofit healthcare systems, all serving the same or portions of the same communities, collaborated to sponsor and participate in the CHNA. This collaborative group retained Valley Vision, Inc., to lead the assessment process. Valley Vision, Inc. (www.valleyvision.org) is a non-profit 501 (c)(3) consulting firm serving a broad range of communities across Northern California. The organization's mission is to improve quality of life through the delivery of high-quality research on important topics such as healthcare, economic development, and sustainable environmental practices. Using a community-based participatory orientation to research, Valley Vision has conducted multiple CHNA's across an array of communities for over seven years. As the lead consultant, Valley Vision assembled a team of experts from multiple sectors to conduct the assessment that included: 1) a public health expert with over a decade of experience in conducting

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[1] *California's Hospital Community Benefit Law: A Planner's Guide*. (June, 2003). The California Department of Health Planning and Development. Retrieved from: http://www.oshpd.ca.gov/HID/SubmitData/CommunityBenefit/HCBPPlannersGuide.pdf

[2] Notice 2011-52, *Notice and Request for Comments Regarding the Community Health Needs Assessment Requirements for Tax-exempt Hospitals*. Retrieved from:http://www.irs.gov/pub/irs-drop/n-11-52.pdf

CHNAs, 2) a geographer with expertise in using GIS technology to map health-related characteristics of populations across large geographic areas, and 3) additional public health practitioners and consultants to collect and analyze data.

"HEALTH NEED" AND OBJECTIVES OF THE ASSESSMENT

The CHNA was anchored and guided by the following objective:

> *In order to provide necessary information for Kaiser Permanente's, NorthBay Healthcare's, and Sutter Health Sacramento Sierra Region's community health improvement plans, identify communities and specific groups within these communities experiencing health disparities, especially as these disparities relate to chronic disease, and further identify contributing factors that create both barriers and opportunities for these populations to live healthier lives.*

The World Health Organization defines *health needs* as "objectively determined deficiencies in health that require health care, from promotion to palliation."[3] Building on this and the definitions compiled by Kaiser Permanente[4], the CHNA used the following definitions for health *need* and *driver*:

> Health Need: *A poor health outcome and its associated driver.*
>
> Health Driver: *A behavioral, environmental, and/or clinical factor, as well as more upstream social economic factors, that impact health.*

ORGANIZATION OF THE REPORT

The following pages contain the results of the needs assessment. The report is organized accordingly: first, the methodology used to conduct the needs assessment is described. Here, the study area, or hospital service area (HSA), is identified and described, data and variables used in the study are outlined, and the analytical framework used to interpret these data is articulated. Further description of the methodology, including descriptions and definitions, is contained in the appendices.

Next, the study findings are provided, beginning with identified geographical areas, described as *Communities of Concern* that were identified within an HSA as having poor health outcomes and socio-demographic characteristics, often referred to as the "social determinants of health", that contribute to poor health. Each Community of Concern is described in terms of health outcomes and population characteristics residing in these communities, as well as health behaviors and environmental conditions. Behavioral and environmental conditions are organized into four profiles: *safety, food environment, active living, and physical wellbeing.* The report closes with a brief conclusion.

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[3] *Expert Committee on Health Statistics. Fourteenth Report.* Geneva, World Health Organization, 1971.WHO Technical Report Series No. 472, pp 21-22.

[4] Community Health Needs Assessment Toolkit – Part 2. (September, 2012). Kaiser Permanente Community Benefit Programs.

METHODOLOGY

The assessment used a mixed method data collection approach that included primary data such as key informant interviews, community focus groups, and a community assets assessment. Secondary data included health outcomes, demographic data, behavioral data, and environmental data (the complete data dictionary available in Appendix B).

Community-Based Participatory Research (CBPR) Approach

The assessment followed a community-based participatory research approach for identification and verification of results at every stage of the assessment. This orientation aims at building capacity and enabling beneficial change within the hospital CHNA workgroup and the community members for which the assessment was conducted. Including participants in the process allows for a deeper understanding of the results.[5]

Unit of Analysis and Study Area

The study area of the assessment was Solano County. A key focus was to show specific communities (defined geographically) experiencing disparities as they relate to chronic disease and mental health. To this end, ZIP Code boundaries were selected as the unit-of-analysis for most indicators. This level of analysis allowed for examination of health outcomes at the community level that are often hidden when data are aggregated at the county level. Some indicators (demographic, behavioral, and environmental in nature) were included in the assessment at the census tract level, the census block, or point prevalence, which allowed for deeper community level examination.

Identifying Hospital Service Areas (HSA)

The HSA was designated as all of Solano County because all three healthcare systems serve communities within the county and, as a key partner in this assessment and eventual implementation, the Solano Coalition for Better Health maintains close relationships with the healthcare systems involved. The HSA identified to be the focus of the needs assessment is depicted in Figure 2.

[5] See: Minkler, M., and Wallerstein, N. (2008). Introduction to community-based participatory research. In *Community-based participatory research for health: From process to outcomes*. M. Minkler& N. Wallerstein (Eds). (pp. 5-23). San Francisco: John Wiley & Sons; Peterson, D. J., & Alexander, G. R. (2001). *Needs assessment in public health*. New York: Kluwer Academic/Plenum Publishers; Summers, G. F. (1987). Democratic governance. In D. E. Johnson, L. R. Meiller, L. C. Miller, & G. F. Summers (Eds.), *Needs assessment*, (pp. 3-19). Ames, IA: Iowa State University Press.

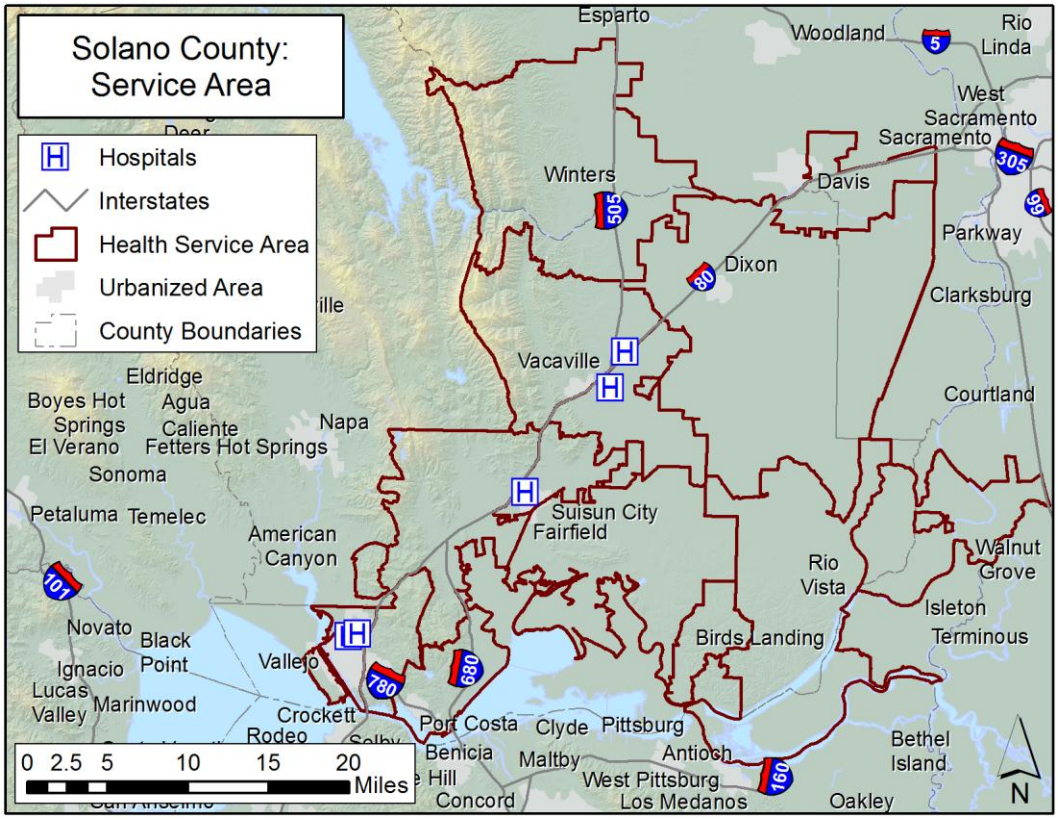

Figure 2: Map of the Solano County HSA

Primary Data- The Community Voice

Primary data collection included qualitative data gathered in four ways:

1. Meetings with the CHNA workgroup, i.e. Kaiser Permanente, NorthBay Healthcare, Sutter Health Sacramento Sierra Region, Solano Coalition for Better Health, Solano County Public Health Department, Community Clinic Consortium, and La Clinica
2. Key informant interviews with area health and community experts
3. Focus groups with area community members
4. Community health asset collection via phone interviews and website analyses

CHNA Workgroup

The CHNA workgroup was an active contributor to the qualitative data collection. Using the previously described CBPR approach, regularly scheduled meetings were held with the workgroup at each critical stage in the assessment process. This data, combined with demographical data, informed the location and selection of key informant interviews for the assessment.

Key Informant Interviews

Key informants are health and community experts familiar with populations and geographic areas within the HSA. To gain a deeper understanding of the health issues pertaining to chronic disease and the populations living in these vulnerable communities, input from 17 key informant

interviews were conducted using a theoretically grounded interview guide (Appendix D). Each interview was recorded and content analysis was conducted to identify key themes and important points pertaining to each geographic area. Findings from these interviews were used to identify communities in which focus groups would most aptly be performed. A list of all key informants interviewed, including name, professional title, date of interview, and description of knowledge and experience is detailed in Appendix C.

Focus Groups

Members of the community representing subgroups defined as groups with unique attributes, such as race/ethnicity, age, sex, culture, lifestyle or residents of a particular area of the HSA, were recruited to participate in focus groups. A standard protocol was used for all focus groups(See Appendix F) to understand the experiences of these community members as it relates to health disparities and chronic disease. In all, a total of five focus groups (for a complete list see Appendix E) were conducted, comprised of 89 total community residents. Content analysis was performed on focus group interview notes and/or transcripts to identify key themes and salient health issues affecting the community residents.

Community Health Assets

Data were collected on health programs and support services within the HSA and the specific Communities of Concern. A list of assets was compiled and a master list was created. Next, detailed information for each asset was collected through scans of the organization websites and, when possible, direct contact with staff via phone. The assets are organized by ZIP code, with brief discussion in the body of the report and detailed description in Appendix H.

Selection of Data Criteria

Criteria were established to help identify and determine all data to be included in the study. Data were included only if they met the following standards:

1. All data were to be sourced from credible and reputable sources
2. Data must be consistently collected and organized in the same way to allow for future trending
3. Data must be available at the ZIP code level or smaller

All indicators listed below were examined at the ZIP code level unless noted otherwise. County, state, and Healthy People 2020 targets (when available) were used as benchmarks to determine severity. All rates are reported as *per 10,000 of population* unless noted otherwise. Health outcome indicator data were adjusted using Empirical Bayes Smoothing where possible, to increase the stability of estimates by reducing the impact of the small number problem. To provide relative comparison across ZIP codes, rates of ED visits and hospitalization for heart disease, diabetes, hypertension, and stroke were age-adjusted to reduce the influence of age. Appendix B contains a detailed methodology of all data processing and data sources.

Secondary quantitative data used in the assessment include those listed in Tables 1 and 2:

Table 1: Health outcome data used in the CHNA reported as ED visits, hospitalization, and mortality

ED and Hospitalization[6]		Mortality[7]	
Accidents	Hypertension*	All-Cause Mortality*	Infant Mortality (per 1,000 live births)
Asthma	Mental Health	Alzheimer's Disease	Injuries
Assault	Substance Abuse	Cancer	Life Expectancy at Birth
Cancer	Stroke*	Chronic Lower Respiratory Disease	Liver Disease
Chronic Obstructive Pulmonary Disease	Unintentional Injuries	Diabetes	Renal Disease
Diabetes*	Self-Inflicted Injury	Heart Disease	Stroke
Heart Disease*		Hypertension	Suicide

*Age adjusted by 2010 California standard population

Table 2: Socio-demographic, behavioral and environmental data profiles used in the CHNA

Socio-Demographic Data	
Total Population	Limited English Proficiency
Family Makeup	Percent Uninsured
Poverty Level	Percent over 25 with No High School Diploma
Age	Percent Unemployed
Race/Ethnicity	Percent Renting
Behavioral and Environmental Profiles	
Safety Profile • Major Crime • Assault • Unintentional Injury • Fatal Traffic Accidents • Accidents	Food Environment Profile • Percent Obese/Percent Overweight • Fruit and VegetableConsumption (≥5/day) • Farmers Market Location • Food Deserts • Modified Retail Food Environment Index (MRFEI)
Active Living Profile • Park Access	Physical and Mental Wellbeing Profile • Age-adjusted Overall Mortality • Life Expectancy at Birth • Infant Mortality • Health Professional Shortage Areas • Health Assets

Data Analysis

Identifying Vulnerable Communities

The first step in the process was to examine socio-demographics in order to identify areas of the HSA with high vulnerability to chronic disease disparities and poor mental health outcomes. Race

[6] Office of Statewide Health Planning and Development, ED Visits and Hospitalization, 2011
[7] California Department of Public Health, Deaths by Cause, 2010

and ethnicity, household makeup, income, and age variables were combined into a *vulnerability index* that described the level of vulnerability of each census tract. This index was then mapped for the entire HSA. A tract was considered more vulnerable, or more likely to have higher negative or unwanted health outcomes than others in the HSA, if it had higher: 1) percent Hispanic or Non-White population; 2) percent single parent headed households; 3) percent population below 125% of the poverty level; 4) percent population under five years old; and 5) percent population over 65 years of age living in the census tract. This information was used in combination with input from the CHNA workgroup to identify prioritized areas for which key informants would be sought.

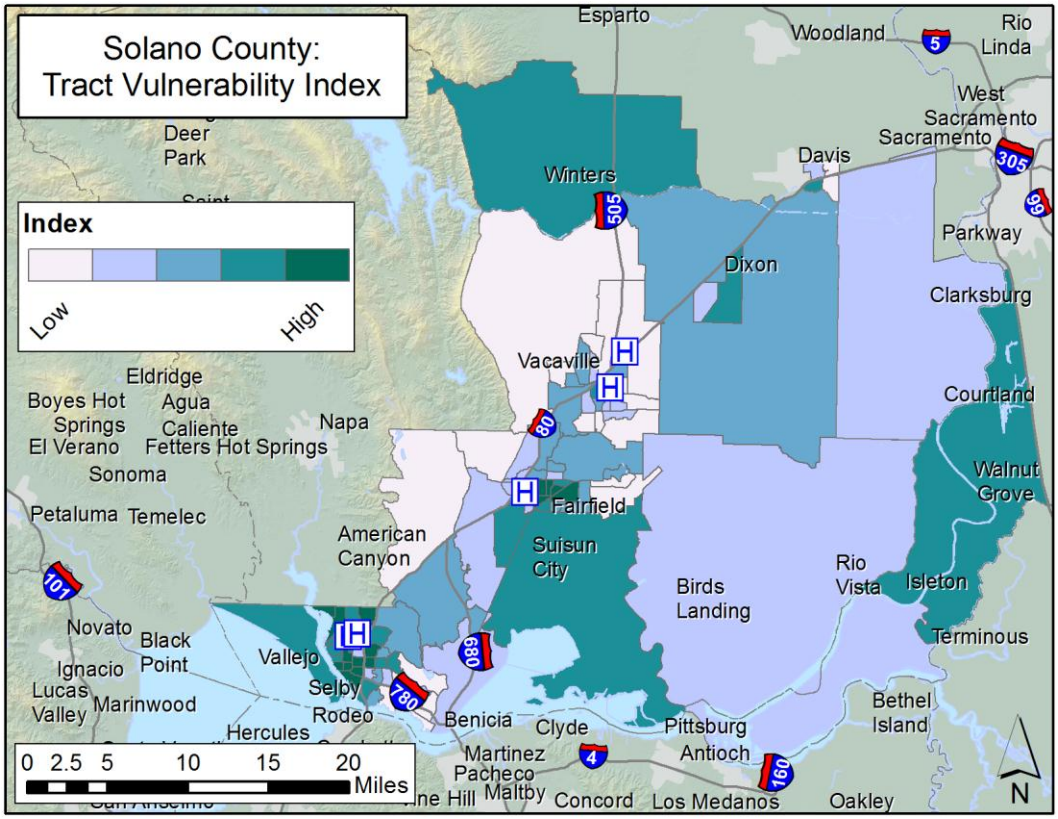

Figure 3: Health service area map of vulnerability for Solano County

Where to Focus Community Member Input? Focus Group Selection

Selection of locations for focus groups was determined by feedback from key informants, CHNA team input, and analysis of health outcome indicators (ED visits, hospitalization, and mortality rates) that pointed to disease severity. Key informants were asked to identify populations that were most at risk for chronic health disparities and mental health issues. In addition, analysis of health outcome indicators by ZIP code, race and ethnicity, age, and gender revealed communities with high rates that exceeded county benchmarks. This information was compiled to determine the location of focus groups within the Solano County HSA.

Identifying "Communities of Concern": the First step in Prioritizing Area Health Needs

To identify Communities of Concern, input from the CHNA team and primary data from key informant interviews and focus groups, along with detailed analysis of secondary data, health

outcome indicators, and socio-demographics were examined. ZIP Codes with rates that consistently exceeded county, state, or Healthy People 2020 benchmarks for ED utilization, hospitalization, and mortality were considered. ZIP Codes that consistently fell in the top 20% highest rates were noted and then triangulated with primary and socio-demographic data to identify specific Communities of Concern. This analytical framework is depicted in the Figure 4.

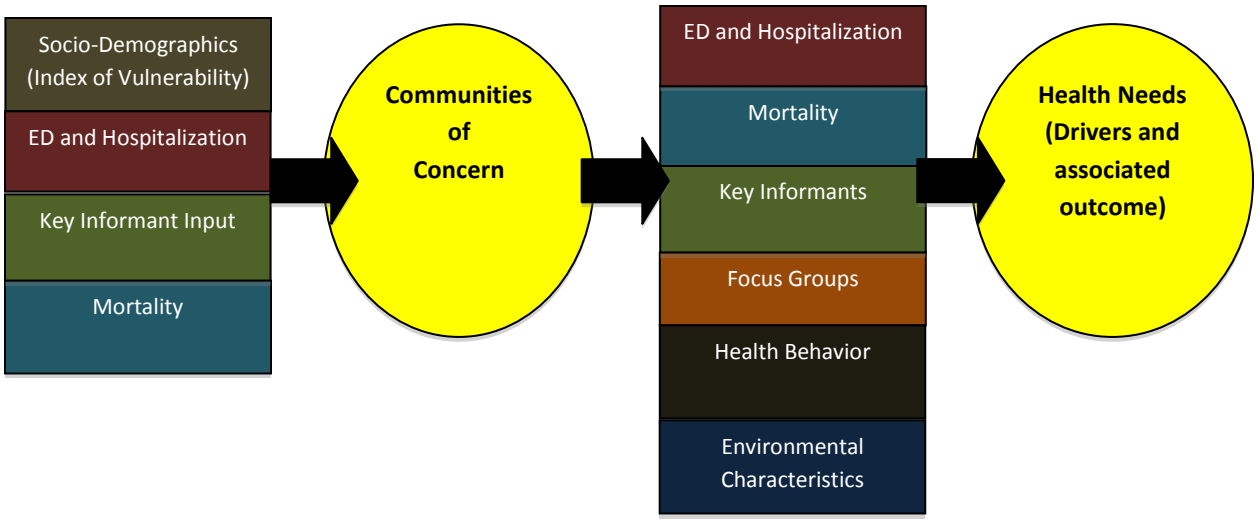

Figure 4: Analytical framework for determination of Communities of Concern and health needs

What is the Health Profile of the Communities of Concern? What are the Prioritized Health Needs of the Area?

Data on socio-demographics of residents of these communities, which included socio-economic status, race and ethnicity, educational attainment, housing arrangement, employment status, and health insurance status, were examined. Area health needs were determined via in-depth analysis of qualitative and quantitative data, and then confirmed by socio-demographic data. As noted earlier, a health need was defined as *a poor health outcome and its associated driver*. A health need was included as a priority if it was represented by rates worse than the established quantitative benchmarks or was consistently mentioned in the qualitative data.

Summary of Steps Taken in the Prioritization of Health Needs

Prioritization of health needs occurred at two levels: 1) identification of high risk geographical areas within each HSA, and 2) determination of health needs (defined as behavioral, environmental, and/or clinical factors, as well as more upstream social economic factors, that impact health outcomes).

Identification of High-Risk Geographical Areas of the HSA

First, within the HSA specific Communities of Concern were identified through the analysis of data collected from key informant interviews, focus group interviews, health outcome indicators, and socio-demographic indicators (see Appendix B). This step identified specific communities within the larger HSA that were at higher risk for negative health outcomes disproportionately to the overall HSA, as well as subgroups within Communities of Concern that experienced these health disparities.

Determination of Health Heeds

Health needs were identified through the examination of health behavior and environmental data, as well as qualitative data pertaining specifically to the Communities of Concern. Upon identification of a health need, examination of data which spoke to corresponding health outcomes and related socio-demographical influences on that health need were noted in the health needs table (Appendix G). A health need was considered a higher priority based on the number of times key informants and focus group participants pointed to the severity of the identified need, and the degree to which the quantitative data supported the findings.

FINDINGS

Analysis of data revealed the Communities of Concern listed in Table 3.

Table 3: Communities of Concern for Solano County HSA

ZIP	Community Name	County	2010 Population*
94533	Fairfield	Solano	69,277
94571	Rio Vista	Solano	7,911
94589	Vallejo	Solano	29,876
94590	Vallejo	Solano	35,420
94591	Vallejo	Solano	53,042
95688	Vacaville	Solano	34,379
Total population of Communities of Concern			229,905

(*Source: 2010 Census)

Figure 5 depicts the ZIP Code boundaries for the Communities of Concern for the Solano County HSA.

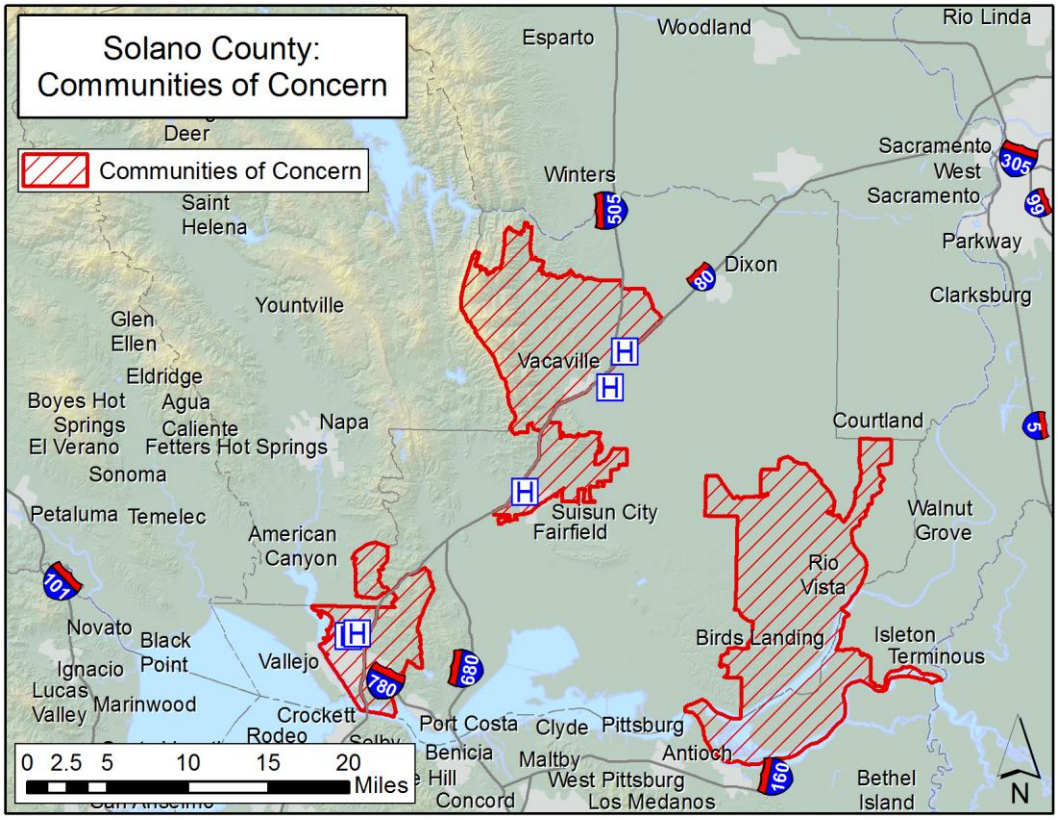

Figure 5: Map of Communities of Concern for Solano County HSA

The Communities of Concern are clustered in the Vallejo, Fairfield, and Vacaville areas along the I-80 corridor. In terms of population density, these represent the major population centers of the Solano County HSA. The Rio Linda area Communities of Concern are located in the southeastern portion of the county adjacent to the Delta area and are considered more rural.

Socio-demographic Profile of Communities of Concern

Socio-demographic conditions, commonly referred to as social determinants of health, help predict which communities in a broad geographic area are most susceptible to poor health outcomes. Table 4 below describes the socio-demographic profile of each community of concern for the Solano County HSA. The six ZIP Codes identified are home to nearly one-quarter million residents. Data indicated that these areas of the HSA were highly diverse and demonstrated a large number of areas with high rates of poverty, low educational attainment, high unemployment, high uninsured rates, and a high number of residents renting versus owning their homes.

Table 4: Socio-demographic characteristics for HSA Communities of Concern compared to national and state benchmarks

	% Households in poverty over 65 headed	% Families in poverty w/ kids	% Families in poverty female headed	% over 25 with no high school diploma	% Non-White Hispanic	% pop over age 5 with limited Eng.	% Unemployed	% No health insurance	% Residents Renting
94533	7.1	13.7	26.6	**16.9**	66.4	6.4	**11.3**	15.5	43.3
94571	3.6	14.1	**53.8**	**20.5**	29.4	5.1	**9.1**	**19.3**	32.2
94589	**11.2**	8.0	22.5	**19.2**	85.4	6.0	**11.1**	13.3	27.0
94590	**13.0**	**19.5**	31.0	**21.3**	73.6	6.1	**15.5**	**24.8**	54.6
94591	4.6	5.0	11.0	11.3	74.2	3.7	**9.2**	8.5	27.3
95688	4.6	7.8	20.8	**13.5**	37.0	5.1	**8.1**	9.4	27.2
National	*8.7*[8]	*15.1*[9]	*31.2*[10]	*12.9*[11]		*9.0*[12]	*7.9*[13]	*16.3*[14]	
State				*19.4*[15]			*9.8*[16]	*22.0*[17]	

(Source: Dignity Health Community Benefit, CNI Data, 2011)

In all six ZIP Codes, at least 29.4% of residents reported as either Hispanic or non-White. In ZIP Codes within Vallejo and Fairfield, 66.4% or more reported as Hispanic or non-White. The percent of residents over the age of five with limited English proficiency (LEP) was relatively low, ranging from 3.7% to 6.4%.

ZIP Codes 94571, 94589, and 94590 displayed high percentages of poverty in specific areas. In Rio Vista, 94571, 53.8% of single female-headed households were living in poverty, which exceeded the national average of 31.2%. Two ZIP Codes in Vallejo, 94589 and 94590,had a higher percent of residents over age 65 living in poverty compared to the national benchmark. The percent of families with children living in poverty in 94590 was 19.5%, which exceeded the national benchmark of 15.1%.

[8]2011 rate as reported by De Navas, Proctor, and Smith. (2012). Income, Poverty, and Health Insurance Coverage in the United States: 2011. US Department of Commerce- Economic and Statistics Administration- Census Bureau.
[9]Ibid
[10]Ibid
[11]2010 Educational Attainment by Selected Characteristics.US Census Bureau, Unpublished Data. Retrieved from: http://www.census.gov/compendia/statab/cats/education/educational_attainment.html
[12]Pandya, C., Batalova, J., and McHugh, M. (2011). Limited English Proficient Individuals in the United States: Number, Share, Growth, and Linguistic Diversity. Washington, DC: Migration Policy Institute.
[13]US Bureau of Labor Statistics (2012, December). Unemployment Rates for States Monthly Rankings, Seasonally Adjusted. Retrieved from: http://www.bls.gov/web/laus/laumstrk.htm
[14]2011 rate as reported by De Navas, Proctor, and Smith. (2012). Income, Poverty, and Health Insurance Coverage in the United States: 2011. US Department of Commerce- Economic and Statistics Administration- Census Bureau.
[15]2010 Educational Attainment by Selected Characteristics.US Census Bureau, Unpublished Data. Retrieved from: http://www.census.gov/compendia/statab/cats/education/educational_attainment.html
[16]US Bureau of Labor Statistics (2012, December). Unemployment Rates for States Monthly Rankings, Seasonally Adjusted. Retrieved from: http://www.bls.gov/web/laus/laumstrk.htm
[17]Fronstin, P. (2012, December). California's Uninsured: Treading Water. California HealthCare Almanac. Retrieved from: http://www.chcf.org/~/media/MEDIA%20LIBRARY%20Files/PDF/C/PDF%20CaliforniaUninsured2012.pdf

Five out of the six area ZIP Codes had a higher percent of residents over the age of 25 who did not possess a high school diploma compared to the national benchmark. All but one of the ZIP Codes had a higher rate of unemployment compared to the national rate, while two had a higher percent uninsured compared to the national rate at 16.3%. Looking at the percentage of individuals within a ZIP Code who rent versus own their place of residence provides a peak into a community's health and financial stability. The percent of residents who rent in the six ZIP Codes identified as Communities of Concern ranged from 27.0% to 54.6%.

Priority Health Needs for Solano County

Thehealth needs identified through analysis of both quantitative and qualitative data are listed below. Each need is noted as a "health driver," or a condition or situation that contributed to a poor health outcome. The detailed list of priority health needs table, including a description of poor health outcomes and associated drivers, can be found in Appendix G.

1. Limited access to healthy foods
2. Personal safety
3. Lack of or limited access to health education
4. Limited access to follow-up treatment and specialty care
5. Transportation
6. Lack of or limited access to dental care
7. Limited access to medications and prescription drugs
8. Limited places to walk, bike, exercise, or play
9. Limited places and social space for civic engagement
10. Lack of preventive services and community programs

Health Outcomes

Health outcomes listed below were mentioned in the qualitative data collection as priority health issues for the HSA. Many of the Communities of Concern had higher rates of mortality, ED visits, and hospitalization due to diabetes, heart disease, stroke, and hypertension compared to the county and state benchmarks. These indicators are further examined below.

Diabetes, Heart Disease, Stroke, and Hypertension

Diabetes, heart disease, and hypertension were consistently mentioned in the qualitative data as priority health concerns for residents in the Communities of Concern. An examination of ED visits and hospitalization rates by ZIP code and race/ethnicity revealed that in almost all instances Blacks had higher rates of chronic disease.

Table 5: Mortality, ED visit, and hospitalization rates for diabetes compared to state, county, and Healthy People 2020 benchmarks (rates per 10,000 population)

	ZIP Code	Mortality	ED Visits	Hospitalization
Diabetes	94533	**2.3**	**368.3**	**223.8**
	94571	**2.0**	148.5	143.4

	94589	**2.5**	**504.9**	**254.4**
	94590	**2.9**	**604.9**	**281.3**
	94591	**2.8**	**339.1**	**184.0**
	95688	1.8	**230.6**	**199.6**
	Solano County	*2.3*	*297.6*	*181.1*
	CA State	*1.8*	*188.4*	*190.9*
	Healthy People 2020	*6.6*	--	--

(Sources: Mortality, CDPH 2010; ED visits and hospitalization, OSHPD, 2011)

With one exception, all Communities of Concern had rates of mortality, ED visits, and hospitalization dues to diabetes that exceeded benchmarks. ED visits due to diabetes in ZIP Code 94590 was 604.9 visits per 10,000. Among Blacks, however, the rate of ED visits due to diabetes in 94590 was 1,201 visits per 10,000.

Table 6: Mortality, ED visit, and hospitalization rates for hypertension compared to state, county, and Healthy People 2020 benchmarks (rates per 10,000 population)

	ZIP Code	ED Visits	Hospitalization
Hypertension	94533	**640.6**	**404.1**
	94571	**389.1**	326.8
	94589	**1033.6**	**455.8**
	94590	**1281.4**	**535.2**
	94591	**754.8**	348.0
	95688	**556.4**	**444.3**
	Solano County	*631.2*	*364.1*
	CA State	*365.6*	*380.9*

(Sources: Mortality, CDPH 2010; ED visits and hospitalization, OSHPD, 2011)

The rate of ED visits due to hypertension in ZIP code 94590 was 1,281.4 per 10,000. In that same ZIP Code, Blacks had a rate of 2,648.1 per 10,000, followed by rates of 1,325.1 visits per 10,000 for Whites, and 1,088.9 visits per 10,000 for Asians and Pacific Islanders.

Table 7: Mortality, ED visit, and hospitalization rates for heart disease compared to state, county, and Healthy People 2020 benchmarks (rates per 10,000 population)

	ZIP Code	Mortality	ED Visits	Hospitalization
Heart Disease	94533	**12.4**	**182.0**	**229.3**
	94571	**32.2**	**107.9**	**199.8**
	94589	**25.3**	**270.2**	**252.4**
	94590	**18.6**	**345.0**	**321.2**
	94591	**18.2**	**221.1**	202.9
	95688	**14.4**	**171.8**	**237.7**
	Solano County	*9.3*	*186.7*	*209.0*
	CA State	*11.5*	*93.1*	*218.4*
	Healthy People 2020	*10.1*	--	--

(Sources: Mortality, CDPH 2010; ED visits and hospitalization, OSHPD, 2011)

All Communities of Concern had rates of mortality and ED visits due to heart disease that exceeded benchmarks. All but one exceeded benchmarks for hospitalization. When examining rates by race and ethnicity, both Blacks and Whites had the highest rates for ED visits. In all but one ZIP Code, Whites had the highest rates, followed by Blacks, for hospitalization.

Table 8: Mortality, ED visit, and hospitalization rates for stroke compared to state, county, and Healthy People 2020 benchmarks (rates per 10,000 population)

	ZIP Code	Mortality	ED Visits	Hospitalization
Stroke	94533	**4.0**	**39.7**	**66.9**
	94571	**6.1**	**18.0**	33.2
	94589	**4.4**	**51.1**	**67.6**
	94590	**4.5**	**49.7**	**73.3**
	94591	**4.7**	**42.7**	**57.4**
	95688	3.1	**30.1**	**56.7**
	Solano County	*3.5*	*38.1*	*54.3*
	CA State	*3.5*	*16.2*	*51.8*
	Healthy People 2020	*3.4*	--	--

(Sources: Mortality, CDPH 2010; ED visits and hospitalization, OSHPD, 2011)

All Communities of Concern exceeded benchmarks for ED visits, and all but one exceeded benchmarks for mortality and hospitalization due to stroke. ZIP Code 94589 had rates for ED visits over three times the state benchmark. When examining rates by race and ethnicity, both Blacks and Whites had the highest rates among all subgroups for ED visits and hospitalization.

Mental Health

Area experts and community members consistently reported the struggle HSA residents had in maintaining positive mental health and accessing treatment for mental illness. Such struggles ranged from overall daily coping in the midst of personal and financial pressures to the management of severe mental illness requiring comprehensive treatment. Table 9 provides data on ED visits and hospitalization related to mental illness.

Table 9: ED visits and hospitalization due to mental health issues compared to specific county and state benchmarks (rates per 10,000 population)

	ZIP Code	ED Visits	Hospitalization
Mental Health	94533	**172.8**	160.3
	94571	**203.3**	**244.1**
	94589	**334.3**	**231.1**
	94590	**398.3**	**245.9**
	94591	**218.6**	157.4
	95688	**171.4**	**201.1**
	Solano County	*190.4*	*162.6*
	CA State	*130.9*	*182.1*

(Source: OSHPD, 2011)

In the Communities of Concern, the rate of mental health-related ED visits consistently exceeded county and state benchmarks. Vallejo ZIP Code 94590 had rates for ED visits that were over three times the state rate. Both Blacks and Whites had the highest rates among all racial and ethnic groups for ED visits, with one notable exception: in ZIP Code 94590 Native Americans had the highest rates. In all but two ZIP Codes, Whites had the highest rates, followed by Blacks, for hospitalization.

Table 10: ED visits and hospitalization due to substance abuse issues compared to specific county and state rates (rates listed per 10,000)

	ZIP Code	ED Visits	Hospitalization
Mental Health - Substance Abuse	94533	**312.9**	**162.0**
	94571	**269.0**	**204.3**
	94589	**766.0**	**211.7**
	94590	**1415.5**	**326.0**
	94591	**528.8**	**144.8**
	95688	**263.2**	**178.4**
	Solano County	*407.2*	*150.1*
	CA State	*232.0*	*143.8*

(Source: OSHPD, 2011)

All of the Communities of Concern exceeded benchmarks for ED visits and hospitalization due to substance abuse. ZIP Code 94590 in the Vallejo area had rates for ED visits that were over six times the state rate. When examining rates by race and ethnicity, in all but one community of concern, Rio Vista 94571, Blacks had higher rates, followed by Native Americans. For hospitalization, both Blacks and Whites had the highest rates among all groups.

Chronic Obstructive Pulmonary Disease (COPD) and Asthma

Community members and health professionals mentioned Chronic Obstructive Pulmonary Disease (COPD) and asthma as conditions that impact many residents. In an effort to understand the impact of tobacco use and respiratory illness in the Communities of Concern, rates of ED visits and hospitalization related to COPD, asthma, and bronchitis were examined and are displayed in Table11. Rates of ED visits and hospitalization due specifically to asthma are examined independently in Table 12.

Table 11: ED Visits and Hospitalization due to COPD, asthma, and bronchitis compared to county and state benchmarks (rates per 10,000population)

	ZIP Code	ED Visits	Hospitalization
COPD	94533	**325.3**	**184.1**
	94571	**293.1**	**303.9**
	94589	**453.1**	**237.5**
	94590	**556.9**	**283.5**
	94591	**320.6**	**165.7**
	95688	**294.9**	**226.0**

	Solano County	*289.8*	*176.4*
	CA State	*202.3*	*156.8*

(Source: OSHPD, 2011)

All Communities of Concern had rates of COPD-related ED visits above both state and county benchmarks, with ED visits in ZIP Code 94590 occurring at almost three times the county rate. Both Blacks and Whites had the highest rates for ED visits, and in all but one ZIP Code (95688 Vacaville), Whites had the highest rates for hospitalization, followed by Blacks.

Table 12: ED Visit and Hospitalization rates due to asthma compared to county and state benchmarks (rates per 10,000 population)

	ZIP Code	ED Visits	Hospitalization
Asthma	94533	**232.2**	**102.5**
	94571	**197.1**	**125.2**
	94589	**282.0**	**118.4**
	94590	**331.3**	**146.8**
	94591	**211.7**	**98.5**
	95688	**208.2**	**118.9**
	Solano County	*193.4*	*97.0*
	CA State	*134.9*	*70.4*

(Source: OSHPD, 2011)

ED visits and hospitalization related to asthma were consistently high in the Communities of Concern. All rates were higher than the state and Solano County benchmarks. In Fairfield, Vacaville, and Vallejo, Blacks had the highest rates of ED visits due to asthma, at rates approximately twice the amount as Whites. For example, in ZIP Code 94590 Blacks had a rate of 691.8 visits per 10,000 due to asthma compared to 273.8visits per 10,000 for Whites.

Behavioral and Environmental

Safety Profile

Local experts and community members stressed the impact of safety on the health of the area residents living in the various Communities of Concern. Examination of safety indicators included a review of local law enforcement data for Solano County as reported by the California Attorney General's Office in 2010. In addition, outcome safety indicators of ED visits and hospitalization due to assault and unintentional injury were examined.

Crime Rates

Figure 6 shows major crimes by municipality as reported by various jurisdictions. Darker colored areas denote higher rates of major crime, including homicide, forcible rape, robbery, aggravated assault, burglary, motor vehicle theft, larceny, and arson.

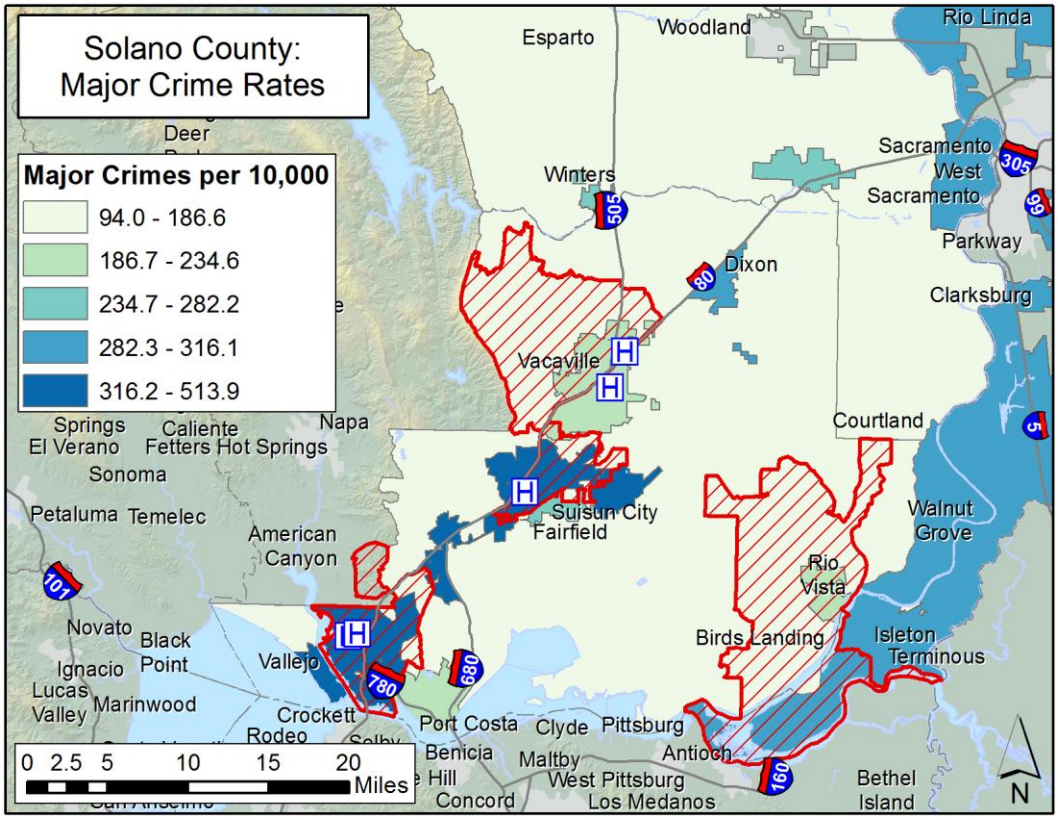

Figure 6: Major crimes by municipality as reported by California Attorney General's Office, 2010

Vallejo ZIP Codes 94590 and 94591 fell into municipalities that had appeared in the highest quintile of crime rates for the HSA (316.2 – 513.9 crimes per 10,000), as did Fairfield ZIP code 94533. Portions of Rio Vista ZIP Code 94571 fell into municipalities that reported elevated crime rates in the second highest quintile (282.3 – 316.1 crimes per 10,000).

Assault and Unintentional Injury

Rates for ED visits and hospitalizations due to assault are displayed in Table 13.

Table 13: ED Visits and Hospitalization due to Assault (rates listed per 10,000) compared to specific county and state rates

	ZIP Code	ED Visits	Hospitalization
Assault	94533	**49.2**	**4.2**
	94571	19.7	1.9
	94589	**65.2**	**6.2**
	94590	**104.9**	**10.3**
	94591	**39.5**	**4.7**
	95688	**37.4**	**5.7**
	Solano County	*38.8*	*4.1*
	CA State	*29.4*	*3.9*

(Source: OSHPD, 2011)

With the exception of Rio Vista, all of the Communities of Concern had hospitalization due to assault that exceeded the county and state benchmarks. As Table 13 indicates, ZIP Code 94590 had a rate for ED visits due to assault over twice the county rate at 104.9 visits per 10,000, the highest in the HSA. Blacks in ZIP Code 94590 had a rate of 207.5 visits per 10,000, followed by Whites with a rate of 90.3 visits per 10,000.

Unintentional Injury

As the fifth leading cause of death in the nation and the first leading cause of death in those under the age of 35, examining rates of unintentional injuries was important. As Table 14demonstrates, all HSA ZIP Codes were above the state benchmarks for ED visits, and the majority also exceeded the county and state benchmarks for hospitalization. The ED visit rate for 94533 among Blacks was 1,632.7 visits per 10,000, followed by Whites at 1,258.9 visits per 10,000. An examination of the age breakdowns in 94533 revealed a rate of 1,236 visits per 10,000for those between 15 and 24 years of age. Ages 1-4 and ages 25-34 followed with rates of ED visits at 1,120.2and 1.031.8 visits per 10,000, respectively. ZIP Codes in Vallejo displayed a similar pattern.

Table 14: ED Visits and Hospitalization due to Unintentional Injury (rates listed per 10,000) compared to specific county and state rates

	ZIP Code	Mortality	ED Visits	Hospitalization
Unintentional Injury	94533	2.2	**996.4**	153.6
	94571	**4.1**	**659.7**	**241.7**
	94589	**3.2**	**1065.0**	**189.5**
	94590	**3.6**	**1407.0**	**221.2**
	94591	2.5	**835.3**	148.4
	95688	2.6	**981.4**	**221.2**
	Solano County	*2.6*	*848.2*	*154.6*
	CA State	*2.7*	*651.8*	*154.6*
	Healthy People 2020	*3.6*	--	--

(Sources: Mortality, CDPH 2010; ED visits and hospitalization, OSHPD, 2011)

Fatality/Traffic Accidents

Figure 7 examines traffic accidents that resulted in a fatality, and Table 15 examines bicycle accidents and accidents involving a motor vehicle versus a pedestrian or bicyclist. Accidents resulting in a fatality contribute to the perception of safety residents feel when traveling through their community, especially for area residents that rely on public, pedestrian, and/or bicycle travel. Both area experts and community members in the HSA stated that access to services and care is largely dependent on adequate transportation, and many residents' access services by walking, biking, or taking public transportation.

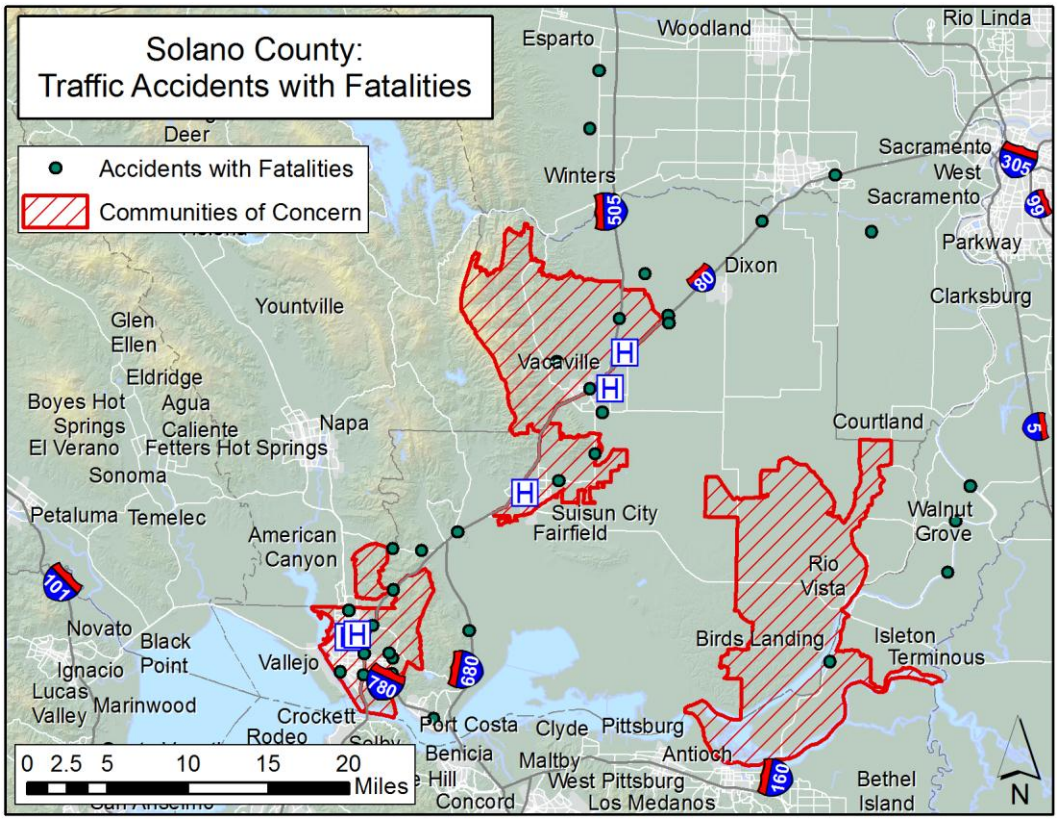

Figure 7: Traffic accidents resulting in fatalities as reported by the National Highway Transportation Safety Administration, 2010

The map above shows traffic accidents with fatalities in the Solano County HAS denoted with a green dot. When examining patterns of accidents resulting in a fatality that did not occur along a major interstate highway, clusters appear in the both the Vallejo, Fairfield, and Vacaville areas.

Table 15: ED Visits and Hospitalization due to Accidents (rates listed per 10,000) compared to specific county and state rates

	ZIP Code	ED Visits	Hospitalization
Accidents (Bike and Bike/Pedestrian versus Car)	94533	**20.0**	0.85
	94571	**16.2**	**1.75**
	94589	**17.9**	**1.36**
	94590	**22.8**	**1.97**
	94591	11.7	1.19
	95688	14.1	**1.82**
	Solano County	*16.0*	*1.29*
	CA State	*15.6*	*1.97*

(Source: OSHPD, 2011)

An examination of ED visits related to accidents involving a bike and bike/pedestrian versus a motor vehicle showed four ZIP Codes exceeded both the county and state benchmarks, with the highest rates being 22.8 visits per 10,000 in Vallejo ZIP Code 94590. The rate in 94590 of accidents involving a bike and bike/pedestrian versus a car was 34 visits per 10,000 among males and 11.6 visits

per 10,000 among females. This pattern was consistent in every community of concern. Four of the Communities of Concern ZIP Codes also exceeded benchmarks for rates of hospitalization.

Food Environment

Table 16 displays data that examined the percent of the population that was obese or overweight, the percent of population not consuming at least five fruits and vegetables per day, and the locations of food deserts and farmers' markets. An examination of the food environment in the Communities of Concern showed that approximately 24% of residents in each ZIP code are obese, and approximately 32% of residents are overweight. In every ZIP code, more than 54% of residents reported not eating at least five servings of fruits or vegetables daily (5-a-day) as recommended by the state. Two of the six ZIP Codes have federally designated food desert tracts located within their boundaries. The federal government designates such tracts as census tracts in which at least 500 people and/or 33% of the population live more than one mile from a supermarket or large grocery store.

Table 16: Percent obese, overweight, and not eating at least five fruits and vegetables daily, presence (x) or absence (-) of federally defined food deserts, and number of farmers markets

	ZIP	% Obese	% Overweight	% Not con 5/day	Food Deserts	Farmers' Markets
Food Environment	94533	25.3	32.6	55.6	X	1
	94571	25.1	32.3	54.2	-	0
	94589	23.0	31.3	55.6	-	1
	94590	26.2	33.3	56.0	X	1
	94591	22.3	31.7	56.3	-	0
	95688	24.1	32.4	54.6	-	2
	CA State	*24.8*[18]	--	--	--	--

(Sources: Obese and overweight, fruit and vegetable consumption: Healthy City (www.healthycity.org), 2003-2005; Food deserts: Kaiser Permanente CHNA Data Platform/US Department of Agriculture, 2011; Farmers markets: California Federation of Certified Farmers Markets, 2012)

Retail food

The data displayed below provides information about the modified Retail Food Environment Index (mRFEI) developed by the Centers for Disease Control and Prevention. The mRFEI indicates the availability of healthy foods by census tract by comparing the proportion of healthy food outlets to all available food outlets. Lighter areas indicate greater access to health foods and the darkest areas indicate no access to healthy foods.

[18]Levi, J. (2012). "F" as in Fat: How obesity threatens America's future. Retrieved from: http://healthyamericans.org/assets/files/TFAH2012FasInFatFnlRv.pdf

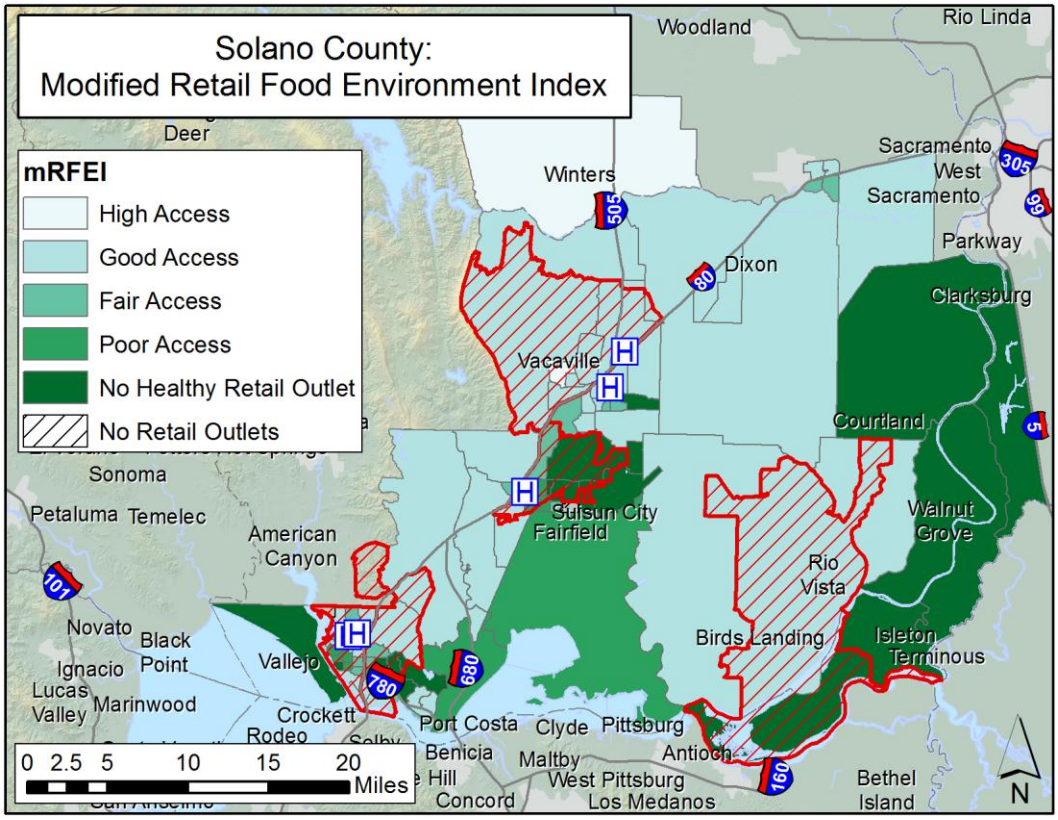

Figure 8: Modified Retail Food Environment Index (mRFEI) by census tracts in Communities of Concern for Solano County

The above data indicated that ZIP Codes 94533 (Fairfield), 94590 (Vallejo), 94591 (Vallejo), and 94571 (Rio Vista) contain census tracts with no or poor access to healthy foods.

Active Living

One of the largest barriers to engagement in physical activity is access to a recreational area. Figure 9 profiles the percent of the population in census tracts that live within one-half mile of a recreational park. Darker colors represent greater park access and lighter colors represent less park access.

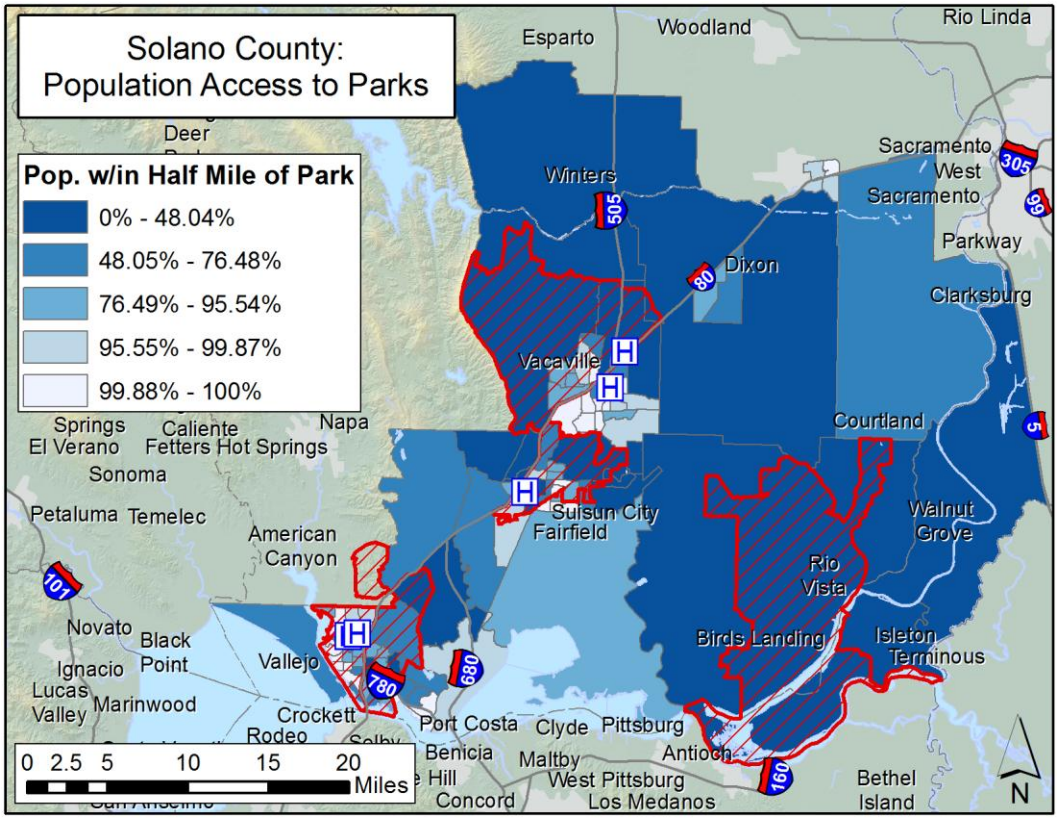

Figure 9: Percent population living in census tract within ½ mile of park space (per 10,000)

All ZIP codes identified as Communities of Concern had census tracts with a low percentage of people living within one-half mile of a park. Specifically, ZIP Code 94571 (Rio Vista) had limited access to parks and the aspects of the rural geography made it difficult for residents to access spaces for recreation. Meanwhile, in 94533 (Fairfield), 95688 (Vacaville), and the Vallejo area (94589, 94590, 94591) there were census tracts that had a high percentage of people living within one-half mile of a park. However, focus group participants reported that safety was a concern in some area parks.

Physical Wellbeing

Age-adjusted all-cause mortality rates are a major indicator of the health of a community, as are infant mortality rates. These data are examined in Table 17. For life expectancy, values in bold are those that fell below reported benchmarks.

Table 17: Age-adjusted all-cause mortality rate, life expectancy at birth, and infant mortality rate (all-cause mortality rate per 10,000 population; infant mortality rate per 1,000 live births)

ZIP	Age-adjusted Mortality	Life Expectancy	Infant Mortality
94533	**71.6**	**78.4**	**5.8**
94571	**63.4**	81.3	0
94589	**74.8**	**78.6**	**5.5**
94590	**76.2**	**75.8**	**5.6**
94591	**69.8**	79.9	**5.6**
95688	**70.6**	80.8	5.2
Solano County	*69.9*	--	*6.4*
CA State	*63.3*	*80.4*[19]	*5.2*
National	--	*78.6*[20]	--
Healthy People 2020	--	--	*6.0*

(Source: 2010 CDPH and 2010 Census data; rates calculated)

ZIP code 94590 had the highest age-adjusted overall mortality rate in Solano County at 76.2 deaths per 10,000. ZIP code 94533 had the highest rate of infant mortality in Solano County, with a rate of 5.8 deaths per1,000 live births. However, the rates of infant mortality for all Communities of Concern were lower than the Solano County and Healthy People 2020 benchmarks.

Health Assets Analysis

Analysis of data indicates that almost 60 distinct health assets are located in the Solano County HSA. These assets include community-based organizations delivering health-related services such as counseling, education programs, primary care healthcare facilities including clinics, food closets, and homeless shelters (a complete list of these services is available in Appendix H). The presence of these organizations presents the healthcare systems within Solano County and the Solano Coalition for Better Health a unique opportunity to enhance community health through increased collaboration and coordination of services.

Summary of Qualitative Findings

To develop a deepened understanding of specific health needs within the Solano County HSA, 17 health experts (detailed in Appendix C) were interviewed using a standard interview protocol (Appendix D). Additionally, five focus groups (detailed in Appendix E) were conducted with residents living in or adjacent to the Communities of Concern. Each key informant interview and focus group was analyzed using a standard content analysis method that identified key topics and themes that described the health needs within the HSA. A brief summation of this analysis is contained in a table appearing in Appendix A. In the table, salient and recurring topics or themes that consistently appeared in the content analysis of key informant interviews and focus groups are identified. These

[19-20]Henry J. Kaiser Family Foundation State Health Facts, 2007. Retrieved from: http://www.statehealthfacts.org/profileind.jsp?ind=784&cat=2&rgn=6

themes are listed under specific questions that were asked in all interviews and focus groups. Recurring themes are supported with quotes from recorded interviews that succinctly state the theme's main idea. The table is not meant to be exhaustive, but representative of statements made by key informants and community residents in response to questions about the health of their community.

LIMITATIONS

Study limitations included difficulties acquiring secondary data and assuring community representation via primary data collection. ED visit and hospitalization data used in this assessment are markers of prevalence, but do not fully represent the prevalence of a disease in a given ZIP code. Currently there is no publicly available data set with prevalence markers at the sub county level for the core health conditions examined in this assessment-- heart disease, diabetes, hypertension, stroke, and mental health. Similarly, behavioral data sets at the sub-county level were difficult to obtain and were not available by race and ethnicity. The format of the CHIS data used in this assessment necessitated the creation of "small region" estimates. Additionally, the available CHIS data was from years 2003-2005. To mitigate these weaknesses, primary data were collected, analyzed, and triangulated with secondary data.

As is common, assuring that the community voice is thoroughly represented in primary data collection was a challenge. Measures were taken to outreach to area organizations for recruitment, assuming that the organization represented a community of concern geographically, racially, ethnically or culturally. Focus group participants were offered incentives such as food and refreshments during the interview. Additionally, data collection of health assets in the hospital service areas was challenging. Many organizations were weary to provide information to our staff over the phone, resulting in limited data on some assets. Further, information on assets such as small community-based organizations was difficult to find and catalog in a systemic manner. Lastly, it is important to understand that services and resources provided by the listed health assets can change frequently, and this directory serves only as a snapshot in time of their offerings.

CONCLUSION

Public health researchers have helped expand our understanding of community health by demonstrating that health outcomes are the result of the interactions of multiple, inter-related variables such as socio-economic status, individual health behaviors, access to health related resources, cultural and societal norms, the built environment, and neighborhood characteristics such as crime rate. The results of this assessment help to shine a light on the relationships of some of these variables that were collected and analyzed to describe the Communities of Concern.

Hospital community benefit managers and personnel can use this expanded understanding of community health, along with the results of these assessments to target specific interventions and improve health outcomes in some of the area's more vulnerable communities. By knowing where to focus community health improvement plans, i.e. the identified Communities of Concern, and the specific conditions and health outcomes experienced by their residents, community benefit programs can develop plans to address the underlying contributors of negative health outcomes.

Appendix A
Summary of Qualitative Findings for Solano County HSA

Theme/Topic	Supporting Information
What are the biggest health issues your community struggles with?	
Diabetes, hypertension, heart disease	• Key informants and focus group participants consistently mentioned diabetes, heart disease, hypertension, and high blood pressure as major health issues
Asthma, allergy induced asthma	• Asthma was brought up often, especially in regards children, but not always limited to just youth
Mental health (depression, anxiety, stress) and substance abuse	• Stress of having to obtain basic needs and pay for personal and family health care expenses • Substance abuse was brought up by key informants and focus group participants
Obesity	• Obesity was mentioned as a outcome due to poor diet, diabetes, poverty, and/or lack of exercise
Dental issues	• Dental issue and lack of access to dental services was consistently mentioned
Who within your community appears to struggle with these issues the most?	
Low income families	• Economic downturn has hurt many families • Many low income families struggle to pay for basic needs and cannot afford health care
Black communities	• Key informants stated that asthma, stroke, and hypertension rates seemed high in the Black communities
Latinos	• Key informants stated that diabetes was common in the Latino communities
Latinos in rural areas	• Key informants stated many Latinos in rural areas are undocumented and, therefore, lack any health coverage
Seniors	• Key informants identified the elderly as having issues around transportation and health care access in the rural parts of Solano
Filipinos in Vallejo	• Key informants identified Filipinos as a specific population in Vallejo as having poor health outcomes
Youth	• Substance abuse and tobacco use at an early age • Asthma was brought up as affecting youth
Homeless	• Key informants mentioned the homeless population in Fairfield and Vallejo
Do you think there are things about where you live that contribute to some of the health outcomes you've described?	
Environmental toxins in rural areas	• Agricultural workers bringing in pesticides and chemicals into the home
Unstable housing	• Multiple families living in a house

	• Leads to communicable diseases resulting in loss of work productivity and absenteeism in schools • Domestic violence
Lack of jobs	• Economic downturn has hurt many families who have lost their jobs • Need vocational training resources • Felon-friendly employers
Safety concerns	• Violence in neighborhoods that prevent people from walking or exercising • High crime rates in some areas, drugs sold at corners where children play
Air quality	• Pesticide fumigation is a concern when going outside • Rural parts of Solano County experience dust storms and pollutants in the air due to agricultural activities
What are some challenges you and/or your community faces in staying health?	
Access to healthy foods	• Farmer's markets are not that affordable and there are no other options in some neighborhoods for fresh foods • Many processed, unhealthy foods are cheap and easily accessible • Cultural conditioning that encourages poor eating habits • Lack of knowledge on how to prepare healthy meals
Transportation issues	• Difficult to take public transit to and from appointments and/or other social services • Public transit is extremely limited in rural parts of the county
Health care affordability	• Families can't afford co-pays or follow-up appointments • Medications may be too expensive
Cultural competent care	• Staff that not only speaks the language, but is from the patient's culture
Access to primary and specialty care	• Focus group participants mentioned the difficulty in obtaining referrals
Lack of health insurance	• People get diagnosed with a health condition, but do not have the means or coverage to pay for treatment • Lack of Medi-Cal coverage or simply no insurance at all
Navigating the health care system	• "Healthcare is a maze."
Access to medications	• "We get a lot of phone calls because people can't afford pain medications." KI_Solano_6 • Medications are simply too expensive or patients need an appointment, which they can't afford, in order to be approved for a refill

	What is the biggest thing needed to improve the health of your community?
Preventive care	• Offer free annual check-ups • Offer free or affordable mammograms and Pap Smears • Free blood pressure checks
Financial stability	• Even before the economic downturn residents struggled to afford food, gas, utilities, and medical expenses
Navigating health care and social services	• Key informants and focus group participants talked about the need to streamline the process in obtaining social benefits/services
Improve or develop healthier public places	• McDonald's is a social space for some groups to meet • Park safety was mentioned as an issue by a number of focus group participants
Pharmacy assistance program	• Increase access to necessary medications
Public outreach and community education	• Inform community about nutrition and healthy eating habits • Engage the community to be active and healthy • Teach how to manage stress
Health education	• Have health classes in the community

Appendix B

Data Dictionary and Processing

Introduction

The secondary data supporting the 2013 Community Health Needs Assessment 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. It begins with a description of the approaches used to define ZIP code boundaries, and the approaches that were used to integrate records reported for PO boxes into the analysis. 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.

ZIP Code Definitions

All health outcome variables collected in this analysis are reported by patient mailing ZIP Codes. ZIP Codes are defined by the US Postal Service as a physical 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. These definitions do not match the approach of the US Census Bureau, which is the main source of population and demographic information in the U.S. 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 block (the smallest unit of Census data available), and then grouping blocks with the same dominant ZIP Code into a corresponding ZCTA. The creation of ZCTAs allows us to identify population figures that, in combination the health outcome data reported at the ZIP Code level, 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 health outcome data. This means that rates cannot be calculated for these ZIP Codes individually because there are no matching ZCTA population figures.

In order to incorporate these patients into the analysis, the point location (latitude and longitude) of all ZIP codes in California (Datasheer, L.L.C., 2012) were compared to the 2010 ZCTA boundaries(U.S. Census Bureau, 2011). 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. Health outcome information associated with these PO Box or unique ZIP codes were then assigned added to the ZCTAs to which they were assigned.

For example, 95609 is a PO Box located in Carmichael. 95609 is not represented by a ZCTA, but it does have patient data reported as outcome variables. Through the process identified above, it was found that 95609 is located within 95608, which does have an associated ZCTA. Health outcome data for ZIP codes 95608 and 95609 were therefore assigned to ZCTA 95608, and used to calculate rates.

Data Sources

Secondary data were collected in three main categories: demographic information, health outcome data, and behavioral and environmental data. Table B1 below lists demographic variables collected from the US Census Bureau, and lists the geographic level at which they were collected. These demographic variables were collected at the Census block, tract, ZCTA, and state levels. Census blocks are roughly equivalent to city blocks in urban areas, and tracts are roughly equivalent to neighborhoods. Table B2 lists demographic variables at the ZIP code level obtained from Dignity Health (2011).

Table B1. Demographic Variables Collected from the US Census Bureau (U.S. Census Bureau, 2013a; U.S. Census Bureau, 2013b)

Variable Name	Definition	Geographic Level	Source
Asian Population	Hispanic or Latino and Race, Not Hispanic or Latino, Asian alone	Tract	2010 American Community Survey 5 Year Estimates Table DP05
Black Population	Hispanic or Latino and Race, Not Hispanic or Latino, Black or African American alone	Tract	2010 American Community Survey 5 Year Estimates Table DP05
Hispanic Population	Hispanic or Latino and Race, Hispanic or Latino (of any race)	Tract	2010 American Community Survey 5 Year Estimates Table DP05
Native American Population	Hispanic or Latino and Race, Not Hispanic or Latino, American Indian and Alaska Native alone	Tract	2010 American Community Survey 5 Year Estimates Table DP05
Pacific Islander Population	Hispanic or Latino and Race, Not Hispanic or Latino, Native Hawaiian and Other Pacific Islander alone	Tract	2010 American Community Survey 5 Year Estimates Table DP05
White Population	Hispanic or Latino and Race, Not Hispanic or Latino, White alone	Tract	2010 American Community Survey 5 Year Estimates Table DP05
Total Households	Total Households	Tract	2010 American Community Survey 5 Year Estimates Table S1101

Variable Name	Definition	Geographic Level	Source
Married Households	Married-couple family household	Tract	2010 American Community Survey 5 Year Estimates Table S1101
Single Female Headed Households	Female householder, no husband present, family household	Tract	2010 American Community Survey 5 Year Estimates Table S1101
Single Male Headed	Male householder, no wife present, family household	Tract	2010 American Community Survey 5 Year Estimates Table S1101
Non-Family Households	Non-family household	Tract	2010 American Community Survey 5 Year Estimates Table S1101
Population in Poverty (Under 100% Federal Poverty Level)	Total poverty under .50; .50 to .99	Tract	2010 American Community Survey 5 Year Estimates Table C17002
Population in Poverty (Under 125% Federal Poverty Level)	Total poverty under .50; .50 to .99; 1.00 to 1.24	Tract	2010 American Community Survey 5 Year Estimates Table C17002
Population in Poverty (Under 200% Federal Poverty Level)	Total poverty under .50; .50 to .99; 1.00 to 1.24; 1.25 to 1.49; 1.50 to 1.84; 1.85 to 1.99	Tract	2010 American Community Survey 5 Year Estimates Table C17002
Population by Age Group: 0-4, 5-14, 15-24, 25-34,45-54, 55-64, 65-74, 75-84, and 85 and over	Total Population by Age Group	Tract	2010 American Community Survey 5 Year Estimates Table DP05
Total Population	Total Population	Tract	2010 American Community Survey 5 Year Estimates Table DP05
Total Population	Total Population	Block	2010 Census Summary File 1 Table P1
Asian/Pacific Islander Population	Total Population, One Race, Asian, Not Hispanic or Latino; Total Population, One Race, Native Hawaiian and Other Pacific Islander, Not Hispanic or Latino	ZCTA, State	2010 Census Summary File 1 Table QTP14
Black Population	Total Population, One Race, Black or African American, Not Hispanic or Latino	ZCTA, State	2010 Census Summary File 1 Table QTP14
Hispanic Population	Total Population, Hispanic or Latino (of any race)	ZCTA, State	2010 Census Summary File 1 Table QTP3

Variable Name	Definition	Geographic Level	Source
Native American Population	Total Population, One Race, American Indian and Alaska Native, Non-Hispanic or Latino	ZCTA, State	2010 Census Summary File 1 Table QTP14
White Population	Total Population, Once Race, White, Not Hispanic or Latino	ZCTA, State	2010 Census Summary File 1 Table QTP14
Male Population	Total Male Population	ZCTA, State	2010 Census Summary File 1 Table PCT12
Female Population	Total Female Population	ZCTA, State	2010 Census Summary File 1 Table PCT12
Population 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	Total Male and Female Population by Age Group	ZCTA, State	2010 Census Summary File 1 Table PCT12
Total Population	Total Population	ZCTA, State	2010 Census Summary File 1 Table PCT12

Table B2. ZIP Demographic Information (Dignity Health, 2011)

Variable
Percent Households 65 years or Older In Poverty
Percent Families with Children in Poverty
Percent Single Female Headed Households in Poverty
Percent Population 25 or Older Without a High School Diploma
Percent Non-White or Hispanic Population
Population 5 Years or Older who speak Limited English
Percent Unemployed
Percent Uninsured
Percent Renter Occupied Households

Collected health outcome data included the number of emergency department (ED) discharges, hospital (H) discharges, and mortalities associated with a number of conditions. ED and H discharge data for 2011 were obtained from the Office of Statewide Health Planning and Development (OSHPD). Table B3 lists the specific variables collected by ZIP Code. 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, 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 years, 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 B3. 2011 OSHPD Hospitalization and Emergency Department Discharge Data by ZIP Code

Category	Variable Name	ICD9/E-Codes
Chronic Disease	Diabetes	250
	Heart Disease	410-417, 428, 440, 443, 444, 445, 452
	Hypertension	401-405
	Stroke	430-436, 438
Respiratory	Asthma	493-494
	Chronic Obstructive Pulmonary Disease (COPD)	490-496
Mental Health	Mental Health	290, 293-298, 301-302, 310-311
	Mental Health, Substance Abuse	291-292, 303-305
Injuries[21]	Unintentional Injury	E800-E869, E880-E929
	Assault	E960-E969, E999.1
	Self-Inflicted Injury	E950-E959
	Accidents	E814, E826
Cancer	Breast Cancer	174, 175
	Colorectal Cancer	153, 154
	Lung Cancer	162, 163
	Prostate Cancer	185
Other Indicators	Hip Fractures	820
	Tuberculosis	010-018, 137
	HIV	042-044
	STDs	042-044, 090-099, 054.1, 079.4
	Oral cavity/dental	520-529
	West Nile Virus	066.4
	Acute Respiratory Infections	460-466
	Urinary Tract Infections (UTI)	599.0
	Complications related to pregnancy	640-649

Mortality data, along with the total number of live births, for each ZIP Code in 2010 were collected from the California Department of Public Health (CDPH). The specific variables collected are defined in Table B4. The majority of these variables were used to calculate specific rates of mortality for 2010. A smaller number of them were used to calculate more complex indicators of wellbeing. To increase the stability of these more complex measures, rates were calculated using values from 2006 to 2010. These variables include the total number of live births, total number of infant deaths (ages under 1 year), and all-cause mortality by age. Table B4 consequently also lists the years for which each variable was collected.

Table B4. CDPH Birth and Mortality Data by ZIP Code

Variable Name	ICD10 Code	Years Collected
Total Deaths		2010

[21] ICD9 code definitions for the Unintentional Injury, Self-Inflicted Injury, and Assault variables were based on definitions given by the Centers for Disease Control and Prevention (CDC, 2011)

Male Deaths		2010
Female Deaths		2010
Population 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		2006-2010
Diseases of the Heart	I00-I09, I11, I13, I20-I51	2010
Malignant Neoplasms (Cancer)	C00-C97	2010
Cerebrovascular Disease (Stroke)	I60-I69	2010
Chronic Lower Respiratory Disease	J40-J47	2010
Alzheimer's Disease	G30	2010
Unintentional Injuries (Accidents)	V01-X59, Y85-Y86	2010
Diabetes Mellitus	E10-E14	2010
Influenza and Pneumonia	J09-J18	2010
Chronic Liver Disease and Cirrhosis	K70, K73-K74	2010
Intentional Self Harm (Suicide)	U03, X60-X84, Y87.0	2010
Essential Hypertension & Hypertensive Renal Disease	I10, I12, I15	2010
Nephritis, Nephrotic Syndrome and Nephrosis	N00-N07, N17-N19, N25-N27	2010
All Other Causes	Residual Codes	2010
Total Births		2006-2010
Births with Infant Birthweight Under 1500 Grams, 1500-2499 Grams		2006-2010

Behavioral and environmental data were collected from a variety of sources, and at various geographic levels. Table B5 lists the sources of these variables, and lists the geographic level at which they were reported.

Table B5. Behavioral and Environmental Variable Sources

Category	Variable	Year	Definition	**Reporting Unit**	Data Source
Healthy Eating/ Active Living	Overweight and Obese	2003-2005	Percent of population with self-reported height and weight corresponding to overweight or obese BMIs (BMI greater than 25)	ZIP Code	Healthy Cities/CHIS
	No 5 a day Fruit and Vegetable Consumption	2003-2005	Percent of population age 5 and over not consuming five servings of fruit and vegetables a day	ZIP Code	Healthy Cities/CHIS
	Modified Retail Food Environment Index (mRFEI)	2011	Represents the percentage of all food outlets in an area that are considered healthy	Tract	Kaiser Permanente CHNA Data Platform/ Centers for Disease Control and Prevention: Division of Nutrition, Physical Activity, and Obesity
	Food Deserts	2011	USDA Defined food desert tracts	Tract	Kaiser Permanente CHNA Data Platform/ US Department of Agriculture
	Certified Farmers Markets	2012	Physical location of certified farmers markets	Location	http://www.cafarmersmarkets.com/
	Parks	2010	U.S. Parks, includes local, county, regional, state, and national parks and forests		Esri
Safe Physical Environments	Crime	2010	Major Crimes (Homicide, Forcible Rape, Robbery, Aggravated Assault, Burglary, Motor Vehicle theft, Larceny, Arson)	Municipality/ Jurisdiction	State of California Department of Justice, Office of the Attorney General (http://oag.ca.gov/crime/cjsc-stats/2010/table11)
	Traffic Accidents Resulting in Fatalities	2010	Locations of traffic accidents resulting in fatalities	Location	National Highway Transportation Safety Administration
Other	Health Professional	2011	Federally designated primary care health		Kaiser Permanente CHNA

Category	Variable	Year	Definition	**Reporting Unit**	Data Source
Indicators	Shortage Areas (Primary Care)		professional shortage areas, which may be defined based on geographic areas or distributions of people in specific demographic groups		Data Platform/ Bureau of Health Professions
	Alcohol Availability	2012	Number of Active Off-Sale Retail Liquor Licenses	ZIP Code	California Department of Alcoholic Beverage Control

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. 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 (Anselin, 2003). 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 2010 census: 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. EBR were calculated for every overall variable, but could not be calculated for certain of the stratified 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 (Klein & Schoenborn, 2001) was performed on the all-cause mortality variable as well as four OSHPD reported ED and H conditions: diabetes, heart disease, hypertension, and stroke. 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. 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.

OSHPD 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 by: first, assigning given ZIP codes to each level of analysis (HAS, county, or state); second, summing the total number of cases and relevant population for all ZCTAs for each HSA, county, or the state; and finally, dividing the total number of cases by the relevant population. Benchmarks for CDPH variables were obtained from two sources. County and state rates were found in the County Health Status Profiles 2010 (California Department of Public Health, 2012). Healthy People 2020 rates (U.S. Deparment of Health and Human Services, 2012) were also used as benchmarks for mortality data.

Additional Well Being Variables

Further processing was also required for the two additional mortality based well-being variables, infant mortality rate and life expectancy at birth. To develop more stable estimates of the true value of these variables, their calculation was based on data reported by CDPH for the years from 2006-2010. Because both ZIP Code and ZCTAs can vary through time, the first step in this analysis was to determine which ZIP Codes and ZCTAs endured through the entire time period, and which were either newly added or removed. This was done by first comparing ZIP Code boundaries from 2007 (GeoLytics, Inc., 2008) to 2010 ZCTA boundaries. The boundaries of ZIP Codes/ZCTAs that existed in both time periods were compared. While minor to more substantial changes in boundaries did occur with some areas, values reported in various years for a given ZIP Code/ZCTA were taken as comparable. In a few instances, ZIP Codes/ZCTAs that were included in the 2010 ZCTA dataset were not included in the 2007 ZIP Code list, or vice versa. The creation date for these ZIP Codes were confirmed using an online resource (Datasheer, L.L.C., 2013), and if these were created part way through the 2006 – 2010 time period, the ZIP code/ZCTA from which the new ZIP Codes were created were identified. The values for these newly created ZIP Codes were then added to the values of the ZIP Code from which they were created. This meant that in the end, rates were only calculated for those ZIP Codes/ZCTAs that existed throughout the entire time period, and that values reported for patients in newly created ZIP Codes contributed to the rates for the Zip Code/ZCTA from which their ZIP Codes were created.

Processing for Specific Variables

Additional processing was needed to create the tract vulnerability index, the additional well-being variables, and some of the behavioral and environmental variables.

Tract Vulnerability Index

The tract vulnerability index was calculated using five tract level demographic variables calculated from the 2010 American Community Survey 5-Year Estimates data: the percent non-White or Hispanic population, percent single parent households, percent of population below 125% of the Federal Poverty Level, the percent population younger than 5 years, and the percent population 65 years or older.

These variables were selected because of their theoretical and observed relationships to conditions related to poor health. The percent non-White or Hispanic population was included because this group is traditionally considered to experience greater problems in accessing health services, and experiences a disproportionate burden of negative health outcomes. The percent of households headed by single parents was included as the structure of households in this group leads to a greater risk of poverty and other health instability issues. The percent of population below 125% of the federal poverty level was included because this is a standard level used for qualification for many state and federally funded health and social support programs. Age groups under 5 years old and 65 and older were included because these groups are considered to be at a higher risk for varying negative health outcomes. The population under 5 years group includes those at higher risk for infant mortality and unintentional injuries. The 65 and over group experiences higher risk for conditions positively correlated with age, most of which include the conditions examined in this assessment: heart disease, stroke, diabetes, and hypertension, among others.

Each input variable was scaled so that it ranged from 0 to 1 (the tract with the lowest value on a given variable received a value of 0, and the tract with the highest value received a 1; tracts with values between the minimum and maximum received some corresponding value less than 1). The values for these variables were then added together to create the final index. This meant that final index values could potentially range from 0 to 5, with higher index values representing areas that had higher proportions of each population group.

Well Being Variables

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 2006-2010 by the total number of live births for the same time period (smoothed to 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 (R Development Core Team, 2009)using the

Human Ecology, Evolution, and Health Lab's (2009)example 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 2006-2010 by five times the ZCTA population for that age group in 2010 (smoothed to EBR). The age group population was multiplied by five to match the five years of mortality data that were used to derive the rates. Multiple years were used to increase the stability of the estimates. In contexts such as these, the population for the central year (in this case, 2008) is usually used as the denominator. 2010 populations were used because they were actual Census counts, as opposed to the estimates that were available for 2008. It was felt that the dramatic changes in the housing market that occurred during this time period reduced the reliability of 2008 population estimates, and so the 2010 population figures were preferred.

Environmental and Behavioral Variables

The majority of environmental and behavioral variables were obtained from existing credible sources. The reader is encouraged to review the documentation for those variables, available from their sources, for their particulars. Two variables, however, were created specifically for this analysis: alcohol availability, and park access.

Alcohol Availability

The alcohol availability variable gives the number of active off-sale liquor licenses per 10,000 residents in each ZCTA. The number of liquor licenses per ZCTA was obtained from the California Department of Alcoholic Beverage Control. This value was divided by the 2010 ZCTA population, and multiplied by 10,000 to create the final rate.

Park Access

The park access variable reports the percent of the population residing in each Census tract that lives in a Census block that is within ½ mile of a park. ESRI's U.S. Parks data set(Esri, 2009) which includes the location of local, county, regional, state, and national parks and forests, was used to determine park locations. Blocks within one-half mile of parks were identified, and the percentage of population residing in these blocks for each tract was determined.

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Appendix C

Key Informants for Solano County Heath Needs Assessment

Name & Title	Agency	Area of Expertise	Date
Minerva Arellano, Manager	Dixon Community Medical Centers	Clinical, community health, underserved populations	6/21/12
Heli Karkkainen, Regional Center Director	Planned Parenthood	Clinical, community health, family planning, underserved populations	6/21/12
Robin Cox, Health Education Manager	Solano County Public Health Dept.	Community wellness, community partner, diversified public health	6/21/12
Ivonne Vaughn, Senior Program Director	City of Vacaville A.T.O.D. Program	Community and youth resources, community prevention and intervention	7/9/12
Jacqueline Jones, Site Manager	La Clinica	Clinical, community health, culturally and linguistically appropriate healthcare for diverse populations	8/16/12
Viola Lujan, Director of Business and Community Relations	La Clinica	Clinical, community health, culturally and linguistically appropriate healthcare for diverse populations	8/16/12
Maria Reyes, Community Health Education Manager	La Clinica	Clinical, community health, culturally and linguistically appropriate healthcare for diverse populations	8/16/12
Margaret Anderson, Board President	Rio Vista CARE/FRC	Family and community resources, low income and/or rural families	8/16/12
Adriana Bejarano, Executive Director	Rio Vista CARE/FRC	Family and community resources, low income and/or rural families	8/16/12
Gloria Diaz, Senior Master Social Worker	City of Vacaville FIRST	Family and community resources, family and youth counseling	8/16/12
Ana Isabel Montaño, Master Social Worker	City of Vacaville FRC	Family and community resources, family and youth counseling	8/16/12
Maria Moses, Volunteer Support Coordinator	Children's Network	Family and community resources, child abuse preventions, affordable childcare, child advocacy	8/16/12
Zoila Perez-Sanchez, Healthy Start Coordinator	Fairfield-Suisun Unified School District and FRC	Family and community resources, children of families in "at risk" neighborhoods	8/16/12
Cookie Powell, Executive Director	Dixon Family Services	Family and community resources, social services to low and moderate income families	8/16/12

Name & Title	Agency	Area of Expertise	Date
Josephine Wilson, Interim Executive Director	Fighting Back Partnership/Vallejo FRC	Family and community resources, neighborhood revitalization, neighborhood safety, crime prevention	8/16/12
Halsey Simmons, Mental Health Director	Solano County Mental Health Dept.	Culturally and linguistically sensitive mental health	9/4/12

Appendix D

Key Informant Interview Protocol

Project Objective

In order to provide the necessary information for sponsoring hospitals' community benefit plans and the Solano Coalition for Better Health to develop an implementation plan…

For each Health Service Area (HSA), identify communities and specific groups within these communities experiencing health disparities, especially as these disparities relate to chronic disease, and further identify contributing factors that create both barriers and opportunities these populations to live healthier lives

Objective #1: to understand the nature of the organization (populations served)

Question: tell me about your organization, the geographic area and populations served.

Objective #2: To understand the predominant health issues in a HSA, and those subgroups disproportionately experiencing these issues

Question #1: What are the biggest health issues [your community, your HSA, you] struggles with?

Probes:

Diabetes, high blood pressure, heart disease, cancer

Mental health

Other issues, including those that are emerging that often go undetected

Question #2: Who [which specific sub-group(s)] within [your community, your HSA] appear(s) to struggle with these issues the most?

Probes:

How do you know, what leads you to make this conclusion?

Describe race/ethnic makeup of HSA to KI if needed

Subgroups within the larger categories

Where in [your community, your HSA] do these groups live?

Describe family status of HSA to KI if needed

Describe the socio-economic status of the HSA to KI if needed

Describe the overall vulnerability of the HSA to KI if needed

Question #3: In what ways do these health issues affect the quality of life of those who struggle with them the most (those subgroups identified above)?

Objective #3: Determine the barriers and opportunities to live healthier lives in the HSA

Question #4: What are some challenges that [your community, your HSA] faces in staying healthy?

Probes:

Behaviors common to your community

Cultural norms and beliefs held by any subgroup, especially those identified above

Smoking

Diet, relationship with food

Physical activity, relationship with one's body

Safety

Access to preventative services, access to basic healthcare

[For specific KIs] *Policies, laws, regulations (provide example if needed)*

Question #5: What are opportunities in [your community, your HSA] to improve and maintain health? What does your community have that helps [your community, your HSA] live a healthy life?

Probes:
Shifting social and community norms and beliefs
Smoking and tobacco use
Opportunities to exercise
Access to fresh produce, healthier diet
Areas for families to gather
Sense of community safety
Access to preventative services, access to basic healthcare
[for specific KIs] *Policies, laws, and/or regulations that can be updated, nullified, amended, or enacted*

Question #6: Of all those you noted above, what is the biggest thing needed to improve the overall health of [your community, HSA]?

Probes:
Policies?
Partnerships?
Economic growth?
Other?
Who is responsible for creating that change?

Question #7: What else does our team need to know about [your community, HSA] that hasn't already been addressed?

Appendix E

Focus Groups conducted for Solano County Health Needs Assessment

Location	Date	Age	Demographic Information
Dixon Migrant Center	10/5/12	30s-40s	Female; Latino; rural; Spanish speaking
Mission Solano	10/15/12	20s-50s	Latino; Black; Caucasian; Asian; Male
Vacaville FRC	10/18/12	20s and 50s	Caucasian; Latino
Bayanihan Center	10/19/12	40s-60s	Filipino; female
Mt. Calvary Fairfield	10/30/12	30s-50s	Black; female

Appendix F
Focus Group Interview Protocol

Demographic Make-up of Group:

Date of Focus Group:	Location:	Conducted by:
Total # of participants:	# male:	# female:
Total number of participants by race/ethnicity: _____ Caucasian _____ Caucasian – Slavic _____ African American _____ Hispanic/Latino _____ Native American _____ Asian _____ More than one race	Total number of participants by insurance status: _____ no coverage at all _____ gov't program _____ commercial ins	Estimate average age of all participants:

Introductory language for the 2013 CHNA and the role of focus groups
As you may know, the State of California requires nonprofit hospitals to conduct community health needs assessments every three years, and to use the results of these to develop community benefit plans, or how each hospital will invest resources into the community to improve overall health. Now the Federal government, through the Affordable Care Act, has imposed the same requirement on nonprofit hospitals throughout the United States. Valley Vision is the organization leading the CHNA for sponsoring nonprofit hospitals that include Dignity Health, Kaiser Permanente, Marshall Medical Center, UC Davis Health System, and Sierra Health Foundation as the lead agency for the Community Transformation Grant. Valley Vision is a nonprofit community betterment consulting firm, and I am [state your relationship to Valley Vision, i.e., employee, contractor, volunteer, etc.] conducting interviews to gather important information to use in the CHNA. You have been identified as an individual with extensive and important knowledge that can help us get a clear picture of the health of [name of specific community, group, condition, or other].

I have several important questions I'd like to ask over the next hour or so. Please feel free to respond openly and candidly to every question. I want to record our interview so that I can be sure I capture everything you say. We will transcribe the recording and analyze the transcriptions of this and similar interviews in order to paint a complete picture of health of [name of specific community, group, condition, etc.]. This interview is confidential, however, we may use quotes from the transcription in the writing of our final report and they will not be attributed directly to you.

Before we get going I also want to ask you to sign an informed consent stating your agreement to participate in this interview, and giving me permission to record and use the recording in the larger needs assessment [introduce informed consent form and get signed before beginning interview].

If needed, begin by stating the project's objective…..

Project Objective

In order to provide necessary information for sponsoring hospital's community benefit plans and the Solano Coalition for Better Health to develop an implementation plan…

For each Health Service Area (HSA), identify communities and specific groups within these communities experiencing health disparities, especially as these disparities relate to chronic disease, and further identify contributing factors that create both barriers and opportunities for these populations to live healthier lives

Objective #1: To understand the predominant health issues in a HSA, by those subgroups disproportionately experiencing these issues

Question #1: What are the biggest health issues [your community, your family, you] struggles with?

Probes:

- *Diabetes, high blood pressure, heart disease, cancer*
- *Mental health*
- *Other issues, including those that are emerging that often go undetected*

Objective #2: Determine contributors to the health outcomes experienced by participants.

Question #2: What do you think is causing these health outcomes and health issues you've described?

Probes:

- Tobacco use
- Diet
- Stress and anxiety
- Physical activity
- Cultural norms and beliefs pertaining to health, diet, and exercise

Question #3: Do you think there are things where you live that contribute to some of the health outcomes and health issues you've described?

Probes

- Perception of safety when outdoors
- Lack of places to exercise
- Second hand smoke, etc.

Objective #2: Determine the barriers and opportunities to living healthier lives in the HSA

Question #4: What are some challenges that [your community, your HSA] faces in staying healthy?

Probes:

- *Behaviors common to your community?*
- *Cultural norms and beliefs held by any subgroup, especially those identified above*
- *Smoking*

- *Diet, relationship with food*
- *Physical activity, relationship with one's body*
- *Safety*
- *Access to preventative services, access to basic healthcare*
- *Policies, laws, regulations (provide example if needed)*

Question #5: What are the opportunities in [your community, your HSA] to improve and maintain health? What does your community have that helps [your community, your HAS] live a healthy life?

Probes:

- *Shifting social and community norms and beliefs*
- *Smoking and tobacco use*
- *Opportunities to exercise*
- *Access to fresh produce, healthier diet*
- *Areas for families to gather*
- *Sense of community safety*
- *Access to preventative services, access to basic healthcare*
- *Policies, laws, and/or regulations that can be updated, nullified, amended, or enacted*

Question #6: Of all those you noted above, what is the biggest thing needed to improve the overall health of [your community, HSA]?

Probes:

- *Policies?*
- *Partnerships?*
- *Economic growth?*
- *Other?*
- *Who is responsible for creating that change?*

Question #7: When have you seen your community experience its greatest successes and/or accomplishments? What happened to account for the success?

Question #8: What are your community's greatest strengths and assets? How have these been used in the past to create positive change?

Question #9: What would you like the hospital systems to know about your community? What can the hospital systems do to improve the health of your community?

Question #10: What else does our team need to know about [your community, HSA] that hasn't already been addressed?

Appendix G
Identified Health Needs Table

Health Need	Clarification/Definition	Associated Health Outcome(s)	Supportive Data
Limited access to healthy foods	Farmers' markets and healthy food can be expensive, high number of fast food places in lower income neighborhoods, busy schedules make it difficult to prepare meals, and cultural diets may not be healthy	Chronic diseases, obesity	mRFEI; food deserts; farmers' markets; % consuming fruits and vegetables; % of overweight or obese; qualitative
Personal safety	Parks may not be safe to visit at night, illicit drug sales on streets, and overall perception that a neighborhood or area is unsafe	Chronic diseases, obesity, mental health	Accident, homicide, and violence ED Visits; crime rates; qualitative
Lack of or limited access to health education	Need for more classes and services to educate residents about maintaining their health and/or managing chronic health conditions, may help avoid a health condition becoming a crisis	Various	Qualitative, ED visits due to chronic diseases and mental health
Limited access to follow-up treatment and specialty care	Difficulty getting referrals through Medi-Cal, Medi-Cal reimbursements are too low, residents are diagnosed with a condition but lack the financial resources to obtain care	Diabetes, cancer, others	Health assets; % of uninsured; qualitative
Transportation limitations	Public transit may not have stops near healthcare or social services, clients may not have a car or ability to pay for gas *More route and bus stop location issues in the urban; simple lack of transit and transit that does not go out of town in the rural*	Various	Qualitative
Lack of or limited access to dental care	Medi-Cal no longer covers dental services and paying for services is too expensive	Oral pain, stress, chronic diseases, mental health	Health assets; % of uninsured; qualitative
Limited access to medications and prescription drugs	Prescriptions and co-pays are expensive so residents go without or have to space apart dosages	Chronic diseases, mental health	% of uninsured; qualitative
Limited places to walk, bike, exercise, or play	Neighborhood connectivity, sidewalks, bicycle routes, and parks may not be present in certain neighborhoods *Poor street design and urban planning in the urban and lack of sidewalks or streets where cars go too fast in*	Chronic diseases, obesity	Pedestrian/bike accidents; park access; % of overweight or obese; qualitative

Health Need	Clarification/Definition	Associated Health Outcome(s)	Supportive Data
	rural		
Limited places and social space for civic engagement	City planning and built environment, street design aspects that limit walkability, and healthy public spaces where community can interact, fast food locations may act as social space to meet	Mental health, substance abuse, chronic diseases	Park access; farmers' markets; food deserts; qualitative
Lack of preventive services and community programs	Many city or park programs charge a fee, budget cuts have limited public service availability, exercise classes and gym membership are expensive	Chronic diseases, mental health, other	Health assets; qualitative
Lack of affordable health insurance and medical coverage	Purchasing private health insurance is too expensive and co-pays for services can be cost prohibitive	Various	% of uninsured; qualitative
Difficulty navigating the healthcare and social services system	Qualifying, applying for, and obtaining healthcare and social services is complex and can be confusing	Chronic diseases, mental health, stress	Qualitative
Lack of public outreach and information about nutrition and ways to maintain health	Public service announcements and campaigns about what to look for nutrition-wise and ways to maintain health, also offering nutritional choices and food awareness at schools	Chronic diseases, obesity	Qualitative
Lack of service integration and facility resources	Ability to obtain a number of services at one location, also upgrading or renovating current spaces to offer more services	Stress, anxiety, mental health	Health assets; qualitative
Lack of substance abuse treatment and rehabilitation	Not enough services that treat substance abuse or rehabilitation	Mental health, substance abuse, treating chronic diseases	Health assets, qualitative
Lack of employment and vocational training	Limited retraining programs, employment placement services, and jobs	Stress, depression, anxiety	% of unemployment; qualitative
Lack of linguistic services	Language barriers, physicians not speaking client's language, no translator present during medical visits *Specifically Spanish, but KIs also mentioned they have Tagalog and Punjabi speakers*	Various	Qualitative
Lack of cultural competent care	Medical professionals who are not from the same culture, client feeling like they're not being treated	Various	Qualitative

Health Need	Clarification/Definition	Associated Health Outcome(s)	Supportive Data
	courteously based on their socio-demographic status		
Unstable housing and homelessness	Families doubling up in housing due to economic downturn, families or individuals recently becoming homeless due to the economy	Stress, anxiety, substance abuse, may lead to domestic violence and/or child abuse	% of female headed households w/ kids living in poverty; vulnerability index; qualitative
Lack of healthcare services	No pediatrician or geriatric care in certain areas, lack of clinical services	Various, early detection of diseases	Health assets; qualitative
Lack of or limited access to vision services	Paying for vision services is cost prohibitive and free care is limited	Stress, anxiety	Health assets; % of uninsured; qualitative
Lack of overall health approach by physicians and medical industry	Medicinal response and prescriptions offered first and foremost, as opposed to lifestyle changes or preventive care	Drug dependency, substance abuse, some mental health meds may induce heart conditions	Qualitative
Exposure to unclean air, environmental toxins and pesticides	Living and/or working in or near agricultural areas exposes residents to different pollutants	Asthma, allergies, stress	Asthma ED visits; qualitative
Lack of women's health services	No free mammograms, Pap smears, and other necessary women's health services that may lead to early detection of a condition	Early detection of cancer	Qualitative
Lack of annual physicals and routine check-ups	Residents not receiving healthcare services in times of relatively good health	Early detection of chronic diseases	Qualitative

Appendix H

Health Assets within Communities of Concern for Solano County HSA

Name	Zip Code	Asthma/ Lung Disease	Diabetes	Hypertension	Mental Health	Nutrition	Substance Abuse	Tobacco	Medical Services	Specialty	Other	Dental
Archway Recovery Services	94533						C, P					
Child Haven, Inc.	94533				C, P							
Fairfield Housing Authority	94533										Housing	
Fairfield Suisun Unified School District: Healthy Start Family Resource Center	94533				C						Access to low cost insurance	
Fairfield-Suisun Community Action Council	94533				CM	P			CM		Transportation	
MedMark Treatment Centers	94533						P			Substance Abuse		
Mission Solano	94533				C, CM, P	P	P		P	Homeless shelter		
Pharmatox, Inc.	94533						I, R, P					
Safequest	94533				E, I, C, A, P				I, R	Domestic Violence	Emergency shelter	
Solano Family Health Services: Dental Clinic	94533											Yes
The Children's Network	94533				E					Coordination		
American Cancer Society	94533				I, R				E, I, R, A			
Breast Cancer of Northern Solano - Radiology	94533								S			

Name	Zip Code	Asthma/ Lung Disease	Diabetes	Hypertension	Mental Health	Nutrition	Substance Abuse	Tobacco	Medical Services	Specialty	Other	Dental
Fairfield Health Center	94533				CM, C, R				S, M, E, I, CM, C, R, A, P		Culturally competent	
Kaiser Permanente Fairfield Medical Offices	94533				C				S, M, CM, P			
NorthBay Healthcare System – Cancer Center	94533	P						I	S, M, P	Cancer treatment		
NorthBay Healthcare Medical Group	94533	P	P	P	P				S, M, P			
AIDS Prevention & Care	94533				CM, R				S, E, CM, P			
Aldea Children and Family Services	94533				E, I, C, P							
Fairfield Senior Center	94533					P			I, R	Senior services	Transportation	
Bay Area Services Network BASN (parolee specific) Services	94533						P					
California Alliance For The Mentally Ill - Solano County	94533				E, A, P							
Emergency Medical Services	94533								P			
Fairfield Counseling Center	94533				C, P							
Fairfield-Suisun Transit - Dart And Paratransit	94533										Transportation	

Name	Zip Code	Asthma/ Lung Disease	Diabetes	Hypertension	Mental Health	Nutrition	Substance Abuse	Tobacco	Medical Services	Specialty	Other	Dental
Family Health Centers Of Planned Parenthood - Fairfield	94533				CM, C, R				S, M, E, I, CM, C, R, A, P		Culturally competent	
First 5 Solano Children & Families Commission	94533				E	E, P		E				
Food Bank Of Contra Costa And Solano	94533					P						
WIC	94533					E, P			R			Referrals
Heather House	94533				CM	P	CM		CM	Housing, transition		
Narcotics Anonymous - Solano County	94533						P				Culturally competent	
Solano Asthma Coalition	94533	E, I, A						I, A				
St. Mark's Lutheran Church	94533					P						
Rio Vista CARE	94571				C, P		P		E, I, R	FRC		
Rio Vista Community Services (RVCS)	94571					P						
Delta Intergroup of Alcoholics Anonymous - Serving Rio Vista	94571						P					
Opportunity House	95688					P					Shelter	
Vacaville Family Resource Center	95688				C	P			E, I, R			
Kaiser Permanente Vacaville Medical Offices	95688	P	P	P		P			S, M, E, I, CM, C, R, A, P		Full service hospital	

Name	Zip Code	Asthma/ Lung Disease	Diabetes	Hypertension	Mental Health	Nutrition	Substance Abuse	Tobacco	Medical Services	Specialty	Other	Dental
Dungarvin California	95688					E			I	People with disabilities	Transportation	
City Of Vacaville Youth Services: Vacaville HS	95688				C		P				Diversion	
Crossroads Christian Church	95688				E, C	P	P					
St. Paul's United Methodist Church	95688					P	P					
WIC	95688					E, P			R			Referrals
Vaca Fish - Bethany Lutheran Church	95688					P						
Youth Takin' On Tobacco (YTOT)	95688							E, P				
AA, Al-anon, Al-ateen - Solano North	95688						P					
Sutter Solano Medical Center	94589	P	P	P		P			S, M, E, I, CM, C, R, A, P		Acute-care hospital	
La Clinica - North Vallejo	94589	P	P	P	P	P	E	E	S, M, E, I, CM, C, R, A, P		Culturally competent	
Napa/Solano Health Project	94589											
Kaiser Permanente Vallejo Medical office	94589	P	P	P	P	P			S, M, E, I, CM, C, R, A, P		Full service hospital	
Great Beginnings Prenatal Clinic	94589								P	Low income women, OB/GYN		
Katargeo, Inc.	94589						P					
MedMark Treatment Centers	94590						P			Substance Abuse		

Name	Zip Code	Asthma/ Lung Disease	Diabetes	Hypertension	Mental Health	Nutrition	Substance Abuse	Tobacco	Medical Services	Specialty	Other	Dental
Area Agency on Aging	94590				C	E, P			E, I	Senior services		
House of Acts	94590				C		E, CM, C, P			Substance abuse		
La Clinica	94590	P	P	P	P	P	E	E	S, M, E, I, CM, C, R, A, P	Clinic	Culturally competent	
La Clinica - Dental	94590										Culturally competent	Yes
Solano Family Health Services	94590		P		P	C			R, P		Culturally competent	
Youth and Family Services	94590				E, C, P		E, C, P					
Planned Parenthood Family Health Center	94590				CM, C, R				S, M, E, I, CM, C, R, A, P		Culturally competent	
Baby First Solano	94590				E, C	E, P	E, P	E, P	I, R, P		Transportation	
Alternative Family Services	94590				C, P					Foster kids		
Amador Street Hope Center - Food Bank	94590				C	P	P					
Arc-Solano (Association For Retarded Citizens)	94590				C					People with mental disabilities		
Caminar, Inc.	94590				P							
Carquinez Counseling Center	94590				P							
Catholic Social Services Of Solano County	94590				C, P	P						
Christian Help Center	94590					P					Shelter for homeless populations	

Name	Zip Code	Asthma/ Lung Disease	Diabetes	Hypertension	Mental Health	Nutrition	Substance Abuse	Tobacco	Medical Services	Specialty	Other	Dental
Disabled American Veterans- Vallejo Chapter (21)	94590				I				I			
Fighting Back Partnership	94590						P					
Florence Douglas Senior Center - Activities	94590					P						
WIC	94590					E, P			R			Referrals
For A Child's H.E.A.R.T.	94590				P							
Shamia Recovery Center	94590						P					
Genesis House	94591						S, CM, C, P			Substance abuse		
Vallejo Open MRI Center	94591								S	Diagnostic imaging center	Transportation	
Church On The Hill - Vallejo Dream Center	94591				C							
Blood Center of the Pacific: Community Presbyterian Church	94591								S			
Second Baptist Church	94591					P						

S=screening services; M=disease management services; E=education services; I=information available; CM=case management; C=counseling services offered; R=referral services offered; A=advocacy services; P=programs offered

SOLANO COALITION FOR BETTER HEALTH
COMMUNITY BENEFIT PROJECTS

Solano Kids Insurance Program (SKIP)

SKIP is a program to identify and enroll uninsured children and their parents in a health coverage program. Outreach is targeted to schools, businesses, churches and neighborhoods with the goal of achieving children's health coverage rates above the statewide average for public programs. Target enrollment for 2012 is 2,500 adults and children; 1,200 individuals will receive assistance completing paperwork to retain their existing coverage.

Goals for 2012:

- Target enrollment for 2012 was 2,500 adults and children; 1,200 individuals will receive assistance completing paperwork to retain their existing coverage.

  Accomplishments: Between January and December SKIP enrolled 2,958 new uninsured children and adults into health coverage. This exceeds the goal by 458. In addition, 1,358 residents received assistance completing the annual recertification paperwork required to retain their coverage. Eleven (out of 51) elementary schools in Solano County had 100% of students insured. SKIP maintained 26 enrollment sites in Solano County.

Goals for 2013:

- Enroll 2,500 adults and children into health coverage
- Assist 1,200 individuals with paperwork required to maintain coverage
- Take an active role in educating and enrolling eligible Solano County residents into health plans through Covered California (health insurance exchange). (*grant award notification pending)*

Solano Healthy Kids

Also known as the Children's Health Initiative, Solano Healthy Kids (Cal Fresh) is a county-wide initiative to raise funds to insure 100% of Solano's children. The Coalition's goal in 2012 is to pay premiums for 1200 children; 1,000 at any one point in time.

Goals for 2012:

- The Coalition's goal in 2012 is to pay premiums for 1200 children; 1,000 at any one point in time.

  Accomplishments: 347 kids were enrolled as of December 2012. The Coalition raised $130,000 at its fifth annual "Kids Classic" golf tournament at Chardonnay Golf Club on September 21, 2012. Proceeds were used to purchase coverage for uninsured kids.

Goals for 2013:

- The Coalition's goal is to pay premiums for 1,200 children; 1,000 at any point in time.

Transitional Care Collaborative

The goal is to provide a safe environment for homeless, or near homeless patients who are ready for discharge from acute care hospitals in Solano and connect these patients with primary care, long term housing and other resources to support their recovery and prevent readmissions. NorthBay Healthcare along with the County, Sutter and Kaiser contribute funds to sustain this program. The project has contracted with the Community Action Council to provide case management and respite housing in Fairfield and Vallejo. The project is expected to save the hospitals hundreds of inpatient days by providing a safe place to discharge patients who are medically ready to leave the hospital but have no place to recover.

Goals for 2012:

- Provide a safe place to discharge patients who are medically ready to leave the hospital but have no place to recover.

  Accomplishments: Forty clients were enrolled in respite housing directly after being discharged from the hospital; 14 successfully completed the program. Clients averaged 51 days in the program.
  Of the 23 clients:
  - 100% left the program with health coverage, a primary care home and permanent housing
  - 90% reported substance abuse and/or mental health issues
  - Clients average age was 50; 74% were male

  In addition, 19 clients who did not meet program criteria were assisted obtaining primary care services and health coverage.

Goals for 2013:

- Expand the scope of services and the capabilities of the respite houses to allow them to care for more complex cases (clinical and behavioral conditions)

NORTHBAY HEALTHCARE
COMMUNITY BENEFIT PROJECTS

A Baby Is Coming (ABC) Prenatal Program

NorthBay Healthcare conducts a program to ensure quality prenatal care is available for vulnerable and underserved women in the NorthBay community.

Goals for 2012:

- Using Hypnotherapy as a smoking-cessation intervention, initiate funding documents to support this "promising program" for tobacco and marijuana users to quit during and after pregnancy. Other treatment options in Solano County have not proven to be effective. We aim to enhance our services and offer new intervention to all pregnant patients.

  Achievements: After receiving a notice of non-funding from First Five, a request was made to reconsider our proposal and present it to the First Five Commission. On August 14, the Commission voted to approve a "pilot" program for ABC and the state's Maternal, Child and Adolescent Health Programs to work collaboratively to provide this new service. Our medical social worker completed the Level I, II, III sessions of hypnotherapy training at the Institute for Hypnotherapy and Psycho-spiritual Training Center. She has Level IV to complete in January 2013 and will begin to see patients shortly thereafter. Once a patient has committed to our new program, data collection will begin to monitor successes and report outcomes.

- In collaboration with Women & Children Services, Prenatal Educators, Nurse Practitioners, and Perinatal Care Specialists, assess and standardize the prenatal breastfeeding education given to our patients. The overall goal is to increase our patient's knowledge about the benefits of breastfeeding, the mechanics of how it is accomplished, and for them to feel confident about their decision whether this is the right choice for them. Once they have delivered, the nurses can continue lactation education to support their informed decision.

  Achievements: The **B**reastfeeding **E**xcellence **S**upport **T**eam had many meaningful discussions, sharing educational information from the outpatient setting to the inpatient setting. By doing so, it assures consistency with messaging to our patients and will cause less confusion along the continuum. All patient educational interactions, timeframes and materials have been documented in a current state for 2012. The focus for 2013 will be to enhance and standardize breastfeeding education and materials given to all patients during their prenatal, postpartum and postnatal care.

- In collaboration with Women & Children Services and Patient Financial Services, the Center for Women's Health, the Chief Informatics Officer, and other pertinent NorthBay Healthcare Departments, will develop an outpatient lactation support clinic for postpartum patients. By doing so, NorthBay Healthcare will be fulfilling one of the requirements to achieve the Baby Friendly designation.

  Accomplishments: The Outpatient Lactation Support Program began August 1 in conjunction with World Breastfeeding Month. Patients are scheduled for a lactation appointment five to seven days post discharge. Patients are seen by an IBCLC (International Board Certified Lactation Consultant) in the ABC Prenatal Program to assure breastfeeding and baby do well. The program is currently seeing all types of insured and Medi-Cal patients (including Sutter Regional) on Monday and Thursday afternoons.

  Achievements: Since August 1, the Outpatient Lactation Support Program has had 186 completed appointments with new mothers and babies. The program is well received by all patients and is very much appreciated by new breastfeeding mothers.

Goals for 2013:

- In alignment with Baby Friendly designation, design and implement a robust prenatal education program that addresses breastfeeding during the first, second and third trimesters and through prenatal care.
- Create, coordinate and collaborate with the appropriate team members a seamless process to accept high risk patients from Alpha Pregnancy Center for prenatal care and subsequent delivery at NBMC.
- In collaboration with the Medical Social Worker, develop and complete a hypnotherapy program to include smoking cessation for ABC patients and accept outside referrals from other agencies in Solano County.

Alzheimer's and Dementia Services

NorthBay Healthcare operates the Adult Day Center which offers clients with Alzheimer's Disease and related dementias the opportunity to socialize and participate in stimulating activities, giving caregivers the opportunity to work, resume regular activities or rest. The center is a social model program run by specially trained staff and volunteers and is funded by NorthBay Healthcare with support from the Area on Aging and nominal fees from clients. The Day Center is open Monday through Friday from 7a.m. to 7p.m.

Goals for 2012:

- Submit a completed application for continued funding to Area Agency on Aging serving Solano County by May 31, 2012, to secure grant monies of $36,042.

  Accomplishments: Application was accepted and grant money was secured for the years 2012-13 of $36,042.

- Increase community awareness by involvement in community resource fairs and on-going community education.

  Accomplishments: Provided five community educational events: February 8, *Difficult Behaviors and Coping Strategies*; May 9, *Dealing with Anger, Frustration and Guilt*; August 8, *Stress Management Techniques*; September 12, *The Senor Gems* presentation; and November 10, *Planning for the Future Elder Law Planning.* Each had more than 30 attendees. In addition, we provided educational material at the Senior Expo in April with more 100 attendees, attended the Rio Vista Health and Wellness Fair with 75 attendees, and in October we presented art done by our participants at the NorthBay VacaValley Hospital 25th Anniversary Celebration and greeted many from the community, providing information on our services.

- Offer a satisfaction survey to present caregivers receiving services from the Alzheimer's department to better understand the needs and ensure quality of the program and its services.

  Accomplishment: When we mailed out a survey, we received a 35%-plus return rate, earning rave reviews from respondents who commended us on our services and the quality of the program.

Goals for 2013:

- Submit a completed application for continued funding to Area Agency on Aging serving Solano County by May 21, 2013, to secure grant monies of $48,100 with the goal of offering scholarships to needy families.
- Increase community awareness by involvement in the Walk to End Alzheimer's in Suisun City on October 26, 2013; establishing a NorthBay Team; to show support and to be the leading healthcare organization in Solano County to walk for the cause.
- Offer a three-part educational series on Living with Alzheimer's, in order to enhance community awareness and offer support to caregivers of others with dementia.

Palliative Care

NorthBay Bridges palliative care program, through effective symptom management, assists patients facing a life-limiting, chronic or progressive illness. The goal of the supportive care service is to help the patient realize the best possible quality of life. The supportive care team reaches the emotional, social, cultural and spiritual needsof seriously ill patients and their families. Guided by a philosophy of care within an organized and structured system, treatment is determined and delivered in the context of the patient's unique life goals. This supportive care service can be delivered concurrently with life-prolonging treatment or as the main focus of care. NorthBay's program has been a hospital based consultation program where services are provided by a team including a physician board certified in palliative medicine, a Nurse Practitioner board certified in hospice and palliative care and board certified in pain management, a licensed clinical social worker certified in palliative care and a chaplain. Plans include expanding the program into NorthBay Cancer Center.

Goals for 2012:

- Continue to grow the education programs, internally and externally, include end-of-life care planning.

  Accomplishments: NorthBay Bridges provided staff education on Compassion Fatigue to RN and CNA staff members, and provided education to physicians, and NorthBay staff on palliative care throughout the second half of 2012.

- Create a blog on *NorthBay.org* to further the education programs.

  Accomplishments: Palliative Care Corner was added to the NorthBay.org website and an update also appears monthly in the NorthBay Healthcare FYI. Thus, we expanded our education efforts into the community.

- Increase the number of consults in 2012.

  Accomplishments: Consults increased from 260 in 2011 to 302 in 2012.

- Continue membership and participation with National Palliative Care Registry and Coalition to Advance Palliative Care (CAPC) to assure data collection is in alignment with standards of practice nationally.

  Accomplishments: We continued to be part of the National Palliative Care Registry which the community can access online. It serves as a national palliative care database. Data collection is a requirement for participation and we have had a premium listing for the last four years.

- Continue to provide follow-up bereavement contact for families of our former patients.

  Accomplishments: NorthBay Bridges continues to offer bereavement contact for families of our former patients for the 13 months following the death of their loved one. We are currently following 62 families in various stages of the bereavement follow-up.

Goals for 2013:

- Reach even more patients in 2013 by increasing our consults by 10% overall and expand the benefits of this unique service.
- Expand service into the Cancer Center by hiring a Nurse Practitioner who will assist our oncologists with symptom management of patients with recurring cancer or metastatic cancer.
- Continue to provide education within our system and our community on POLST, advance healthcare directives and Palliative Care services.

Hospice & Bereavement Services

NorthBay's Medicare-certified hospice and bereavement services serve residents of Solano County and are offered to anyone in need – regardless of insurance coverage or their ability to pay for care. Patients are cared for in the home, hospital, nursing home or board-and-care facility. The multidisciplinary staff includes specially trained nurses, home health aides, rehabilitation therapists, social workers, chaplains and volunteers.

Goals and Successes in 2012:

- Successfully complete all audits in 2012, including the accreditation visit by The Joint Commission on hospital accreditation.

  Accomplishments: Staff and managers successfully completed all audits in 2012, including the crucial accreditation visit by The Joint Commission.

- Increase the number of admissions in 2012.

  Accomplishments: Admissions by year end were 249 in 2012 as compared to 238 in 2011.

- Increase the length of time we have with each hospice patient.

  Accomplishments: Average length of stay did decrease in 2012 due to several long-term patients who died. A longer length of stay allows time for our staff to work closely with patients and families for a longer period. The length of stay decreased in 2012 to 42 days, compared to 55 the year before.

- Open the first Bereavement Center in Solano County. Services at the center will be free of charge to anyone seeking grief support and education. Move all support groups offered by NorthBay's Hospice and Bereavement to the new center.

  Accomplishments: Following the opening of the first Bereavement Center in Solano County in June in Fairfield, services continued to grow in the second half of the year. More than 1,400 families received care the first year the bereavement center was opened.

- Offer Death by Suicide Support groups to the community starting June 2012.

  Accomplishments: A group for survivors of victims of suicide is now offered to the community twice a month. It is well attended. Our support groups have been diversified to accommodate our community's needs. Attendance continues to grow for this group.

- Recruit and train five new hospice and bereavement volunteers by September 2012.

  Accomplishments: Recruitment will begin with a new training session set to begin in September 2013. Two new volunteers began in 2012, slightly below our goal of 5.
- Establish a closer relationship with NorthBay Healthcare's two adopted elementary schools in low-income sectors of the community to expose students to the broader community and its needs.

  Accomplishments: Administrators and staff of Fairview Elementary School in Fairfield and Eugene Padan Elementary School in Vacaville now actively communicate with NorthBay staff on bereavement needs, which we provide when requested.

Goals for 2013:

- Increase Hospice admissions by 10% over 2012 admissions.

- Expand the bereavement program to exceed the 2012 volume of 1,400 clients, achieving a 20% increase by year-end 2013.
- Expand bereavement services to assisted living and senior living facilities to increase understanding of bereavement.
- Expand volunteer pool by 20%.
- Expand spiritual bereavement services to two new groups per year beginning in 2013.

Health at Home

NorthBay Healthcare offers high-quality, Medicare-certified health care in the comfort of home to help patients recover more quickly and completely. The broad range of NorthBay Health at Home services gives patients and families confidence and knowledge to manage their medical concerns, which often will prevent hospitalization. Customized programs for each patient's needs promote a smooth recovery after hospital discharge and encourage long-term health.

Goals for 2012:

- Increase admissions in 2012 compared to 2011.

  Accomplishments: Year-end 2012 patient volume was 20% higher than the prior year. For 2012, admissions totaled 1,200, compared to 1,052 in year prior 2011. Staff is focused on preventing hospital readmissions and patient education in the home.

- Upgrade Tele-Health monitoring capabilities.

  Accomplishments: Tele-Health units continued to be deployed in patients' homes to provide daily monitoring of vital signs, weight, blood pressure, temperature, blood sugar and pulse oximetry. Smart phones were deployed to many field staff to interface with monitoring equipment. The result was not only more consistent and frequent transmission of readings to nurses, but an overall expense per visit that was below the 2012 expense budget.

Goals for 2013:

- Continue to grow patient volume and care and achieve a 20% increase by year end.
- Maintain expenditures at or below budget for 2013 despite reimbursement reductions of 5% expected in 2013.
- Continue to improve patient outcomes as measured by publicly released Home Care Compare and Quality Assurance Performance Improvement data.

Adopt-A-School

NorthBay Healthcare and its employees adopted two low–income elementary schools: Fairview Elementary in Fairfield and Padan Elementary School in Vacaville. The goal of the relationship is to promote healthy relationships with low-income schools in the neighborhoods of NorthBay Medical Center and VacaValley Hospital and to expose students to the broader community.

Goals for 2012:

- Conduct another survey of teacher needs in both adopted school campuses, but add to the list a survey of the campus administration to determine if there are campus-wide needs that could be fulfilled. Satisfy as many requests for educational materials and school supplies as possible.

  Accomplishments: In October all teachers at the two schools were surveyed and responded with long lists of their needs. A survey of administrators in Vacaville showed a continuing need for funding for the sixth-grade Science Camp program. NorthBay made a corporate donation of $2,000 to the Science Camp program at Eugene Padan School in hopes of spurring interest in subjects that could lead to a healthcare career.

- Organize healthy-snack holiday parties and gifts for teachers and students.

  Accomplishments: Each classroom in the two schools had a holiday party as 40 NorthBay departments sponsored classrooms. The administration sponsored another 12 classrooms. In addition, with the strong support of former finance manager Rose Kennedy, students in one classroom at Fairview School each received a new pair of shoes. Ms. Kennedy, who passed away in February, now has an endowment in her name to continue to provide shoes to students in need.

- Increase the number of NorthBay departments that adopt classrooms at Eugene Padan Elementary School and Fairview Elementary School.

  Accomplishments: Compared to 2011, the number of departments sponsoring and adopting classrooms declined by two, from 42 to 40. But the number of classrooms sponsored by the 40 departments rose from 59 to 62, as more departments took on more classrooms. In addition, seven managers and senior managers individually took a classroom.

Goals for 2013:

- Expand the teacher survey to include all classroom instructors, and ensure the campus administrations at both adopted schools are polled for campus-wide needs.
- Increase the number of classrooms sponsored by departments, employees and senior managers.

Community Partnerships & Involvement

NorthBay Healthcare seeks to create partnerships with local civic groups, public agencies and private community aid programs to increase assistance to those in need, to nurture healthy lifestyle activities and to support others building a stronger community fabric in northern Solano County.

Goals for 2012:

- Support the healthy living activities of the Matt Garcia Youth Center in Fairfield through the presenting sponsorship of the 2012 Run for Good, increasing the number of NorthBay employees and friends who participate, while helping expand the event to include a half marathon through Fairfield, Suisun City and Travis Air Force Base.

  Accomplishments: The 2012 success of Run for Good was followed up by discussions with race organizers on how to better promote the fundraising efforts. It was decided that two new events would be added in 2013 – a fun run for children, and a half-marathon for the most serious runners. Those are added to the 2013 event, scheduled for April 16, 2013.

- Create a special Heart to Heart Luncheon in Green Valley, a free event, presenting lectures and information about heart health and diet to promote women's health.

  Accomplishments: The popular luncheon on Valentine's Day 2012 attracted a crowd of 230 to the NorthBay Green Valley Administration Center to enjoy a free buffet lunch and a presentation on women's heart issues by internist Kulbir Bajwa, M.D., of the NorthBay Center for Primary Care. Planning for the 2013 event got under way in December and a new date was set for Feb. 15, 2013.

- Continue to partner with the City of Fairfield and its new Allan Witt Aquatics Center, providing first-aid station funding and creating physical therapy programs that utilize the public facility.

  Accomplishments: Despite budget cuts, NorthBay's funding of the first-aid station and financial support helped the aquatic center remain open. Though classes are limited, the community continues to enjoy a year-round aquatic program that supports healthy activities and lifestyles.

- Conduct the annual four-day Nurse Camp to expose high school students to the health care profession by showing them the daily operation of our hospital campuses.

  Accomplishments: Nurse Camp, June 26-29, 2012, again attracted more applicants than could be accommodated during the weeklong activities. Planning got under way in October for the 2013 edition of Nurse Camp.

- Sponsor the annual Authors Luncheon of the Solano Library Foundation, a fundraiser that underwrites Reach Out& Read, a program that provides books for children and young parents who visit our primary care clinics. Volunteer readers give books to families and role-model reading habits that have been proven to improve a youngster's chances to remain healthy and to succeed in reading.

  Accomplishments: The November event attracted a record audience and featured six authors. NorthBay was represented by eight managers and senior managers who participated, including one who serves on the Board of Directors of the non-profit foundation.

- Fund and support the Doug Butt Run, an after-school physical education program that was eliminated by the Fairfield-Suisun Unified School District.

  Accomplishments: Due to budget cuts and a lack of volunteers, the race was not held in 2012.

- In June, collaborating with the American Cancer Society, present the annual Cancer Survivors Day in Fairfield, attracting 150 survivors and their families.

  Accomplishments: This June 3, 2012, event attracted a record number of survivors and their family members – 380. Dr. Jonathan Lopez of NorthBay Cancer Center, hematologist and oncologist, was keynote speaker. Planning immediately began on the 2013 event, which again will be held in June.

Goals for 2013:

- Support the healthy living activities of the Matt Garcia Youth Center in Fairfield through the presenting sponsorship of the 2013 Run for Good, increasing the number of NorthBay employees and friends who participate.

- Conduct a grand opening celebration for Second Hand Rose, the "Thriftique" shop operated by NorthBay Guild, drawing public attention to the need to support programs the Guild helps fund. Associated the Guild's shop with other programs providing clothing and household items to those in need, including the Family Justice Center and ABC program.

- Conduct the Heart to Heart Luncheon in Green Valley, a free event, presenting lectures and information about heart health and diet to promote women's health.

- Conduct the annual four-day Nurse Camp to expose high school students to the health care profession by showing them the daily operation of our hospital campuses.

- Sponsor the annual Authors Luncheon of the Solano Library Foundation, a fundraiser that underwrites Reach Out& Read, a program that provides books for children and young parents who visit our primary care clinics. Volunteer readers give books to families and role-model reading habits that have been proven to improve a youngster's chances to remain healthy and to succeed in reading.

- In June, collaborating with the American Cancer Society, present the annual Cancer Survivors Day in Fairfield, attracting 150 survivors and their families.

- Remain the underwriting sponsor of two civic leadership programs conducted by the Vacaville and Fairfield-Suisun chambers of commerce, enrolling key NorthBay employees in the yearlong program, and assisting with Health Care Day, an educational workshop to expose future community leaders to the challenges, benefits and opportunities that healthcare providers in Solano County experience.

- Conduct R2D2, a bicycle ride to raise awareness of diabetes in Solano County. Ride to Defeat Diabetes will also raise funds for additional educational efforts.

- Conduct ongoing trauma prevention and educational programs that include seminars, exhibits and advertising campaigns. Key targets include falls prevention and safe driving.

Free and Reduced-Cost Health Care

NorthBay Healthcare provides charity care and other financial assistance to those in the community who cannot afford services, or whose health insurance does not cover all services rendered.

Value of Tax Exemption and Contribution to Community Benefit

	2012	2011
Economic Value of Tax Exempt Status Activities	**$7,136,141**	**$1,961,629**
Cost of services to vulnerable populations	**248,003,374**	**239,092,316**
Collections on services to vulnerable populations	**150,269,909**	**153,463,596**
Total Economic Contribution to Community Benefit	**$97,733,466**	**$85,628,720**
Value of 2010 volunteer hours	**$703,676**	**$696,906**

Notes:

1. Volunteer hours valued at rate per *IndependentSector.org*.
2. Savings from the tax-exempt status include not having to pay income tax, FUTA and welfare exemptions on property tax. Note that net income as reported was used for estimating tax liability, though a more accurate number would be obtained by completing an entire tax return. Some other accounting methodologies might be used to minimize annual tax liability (i.e. accelerated depreciation method) if it were an actual, true expense.
3. Costs versus collections are for "vulnerable populations" only. “Vulnerable populations"= Medicare (fee for service, managed care and capitated patients), Medi-Cal (fee for service, managed care and capitated patients), and those with no insurance.
4. Collections were computed as the actual payments received or projected. This represents expected reimbursement and dos not include capitation payments.
5. Cost information is derived from the internal costing system (PPM) for determining the cost of patient care for 12/31/2011 discharges.

APPENDIX A

NORTHBAY HEALTHCARE	**Page No.** 1 of 2	**Number:** 118
ADMINISTRATIVE MANUAL	**Effective Date:** February 1996	
System [X] **Hospitals** []	**Required Review:** Every three years **Reviewed:** **Revised:** 1/99, 1/01, 1/04, 2/07, 3/11	
Policy [x] **Procedure** [ ]	**Responsible Position:** Director, Continuum of Care Services	
Title: H.E.R.O. FUND	**Approval Requirements:**	

I. PURPOSE:

To provide for our patients' non-clinical needs and to assist with the broader health and wellness of our community.

II. POLICY:

A. The H.E.R.O. (Helping Employees Reach Out) Fund was developed by employees to enable employees to donate funds through payroll deduction or one time gift. NorthBay Healthcare matches each gift an employee makes to the Fund.

B. The H.E.R.O. Fund is used to provide for NorthBay Healthcare patients' non-clinical needs. These needs, for example, could be: medications, clothing, food, gasoline, or shelter. These needs may also involve quality of life issues so that the Fund could be used to provide relief/comfort for our patients. These funds are issued only on a case by case basis and are not intended for chronic use. Any patients receiving assistance from the H.E.R.O. Fund will receive only a voucher. No money will be given directly to anyone and no change will be given if the amount listed on the voucher is not used entirely.

C. As NorthBay Healthcare is a community based organization with a mission of "Compassionate Care, Advanced Medicine, Close to Home", the H.E.R.O. Committee will consider community service organizations applying for funds. This must be done through written proposal that delineates how the funds will be utilized. Any written proposal for funds will be reviewed as to whether the request is an appropriate use of funds as outlined in the guidelines above. The H.E.R.O. Committee will have sole responsibility for determining whether to approve/deny written requests for funding. Any proposal that is approved by the Committee will be processed for funding to be distributed during the fourth quarter of the fiscal year.

III. PROCEDURE:

A. To obtain assistance from the H.E.R.O. Fund:

1. An assessment of actual need must be done.

2. Persons who are authorized to assess need and provide vouchers are Social Services and Administrative Coordinators.

3. A voucher must be completed.

4. A voucher can only be used for the vendors who are listed in the H.E.R.O. Fund binder or with vendors who, on a one-time basis, have agreed to accept the voucher.

5. For needs greater than $250.00, the person issuing the voucher must obtain the approval of three H.E.R.O. committee members.

6. The bottom of the white and the bottom of the yellow copies are given to the recipient to be given, in turn, to the vendor by the recipient. The NorthBay Healthcare employee giving the voucher keeps the top part of the white copy and forwards a complete page (pink copy) to the Executive Assistant in Human Resources.

7. Monitoring and Tracking mechanisms and referrals to Social Services are obtained from the information included on the voucher.

APPROVED BY: _____

Deborah Sugiyama
President, NorthBay Healthcare Group

2012 Financial Report: The H.E.R.O. Fund

APPENDIX B

Supported by contributions from NorthBay Healthcare Employeesand by matching funds from NorthBay Healthcare System

Funds available January 1, 2012	**54,063.76**
Contributions (including matching fund from system)	**21,868.00**
SUBTOTAL	**75,931.47**
TOTAL EXPENDITURES	**(14,646.92)**
TOTAL Funds - December 31, 2012	**61,288.55**

APPENDIX C

NORTHBAY HEALTHCARE	Page No. 1 of 4	Number: 1003
ADMINISTRATIVE MANUAL	**Effective Date:** May 1999	
System [x] **Hospitals** []	**Required Review:** Every 3 years **Reviewed:** 5/02, 10/11 **Revised:** 1/05*, 4/07, 9/11	
Policy [x] **Procedure** [ ]	**Responsible Position:** Director, Patient Business Services	
Title: Financial Assistance Program	**Approval Requirements:** VP, Chief Financial Officer Board of Directors	

I. POLICY STATEMENT: NorthBay Healthcare System is committed to providing financial assistance to patients who have no health insurance to pay for medically necessary care or have insurance with a high medical cost or out-of-pocket expense. NorthBay's mission statement, "Compassionate Care, Advanced Medicine, Close to Home" will serve as the foundation for all financial assistance determinations pursuant to this policy. Financial assistance determinations will be made within the broader scope of assisting patients and their families to obtain adequate and affordable insurance that provides an ongoing access to community health care services.

II. PURPOSE: The purpose of this policy is to define the eligibility criteria for financial assistance and provide administrative guidelines for the communication and implementation of this charity care policy.

III. ELIGIBLE SERVICES:

A. Financial assistance will be concentrated in areas of highest patient financial liability. The financial assistance described in this policy will be extended to eligible patients receiving the following NorthBay Healthcare System services:

1. Inpatient Acute Care

2. Observation Care

3. Emergency Services

4. Ambulatory Surgery (if deemed medical necessary)

5. Medical and Radiation Oncology

6. Wound Care

IV. ELIGIBILITY FOR FINANCIAL ASSISTANCE:

A. Eligibility determinations will be made based on family income, which shall be calculated based on the gross income of the patient and each member of the patient's family unit. For purposes of this policy, a patient's family unit shall include a) the patient's legal spouse, b) the patient's registered domestic partner, c) each parent having legal custody of the patient, d) the patient's legal guardians, and e) persons claimed as dependents on the above person's Federal Tax Return. All patients requesting financial assistance will be required to:

1. inform the hospital of any health coverage or other coverage
2. complete an application for State and/or Federal assistance, if requested; failure to compile could result in Financial Assistance Application being denied, and
3. complete and sign the Financial Assistance Application Form
4. provide written verification of identification, residency, income, and assets; self-declaration is acceptable either for those patients who do not have any written verification because they are homeless or because of their immigration status
5. pay a co-payment if applicable

B. Deceased patients with no estate may be granted financial assistance without meeting the above requirements, as well as patients on State or Federal assistance who receive services that are not covered by their assistance program (i.e. Restricted Medi-Cal or State CMSP)

C. Patients who have health insurance coverage for services provided will not be eligible for financial assistance. Examples of health insurance coverage include:

1. HMO, PPO and Commercial health insurance
2. employment or COBRA policies
3. government, state, or county insurance (i.e. Medicare, Medi-Cal, or County Medical Services Program)
4. spousal insurance coverage
5. third party liability insurance

D. Financial assistance under the NorthBay Healthcare Charity Care policy is not intended as a substitute for and shall not be applied to offset share of cost, co-payment obligations, deductibles or coinsurance under any other private or government healthcare insurance program.

V. FINANCIAL ASSISTANCE GUIDELINES:

A. All patients applying for financial assistance must make a $50 co-payment for each separate outpatient visit and $100 co-payment for each separate inpatient visit. The co-payment will be offset against any additional financial obligation for services rendered incident to the visit that is subsequently determined under this policy. The co-payment will be requested at time of registration.

B. Financial assistance will be provided to patients on a sliding scale basis, using the current published Federal Poverty Levels (FPL) as guidelines. Financial Assistance will be granted using the following criteria:

1. If family income is less than 100% FPL: Charity Care with no cost to patient
2. If family income is 101% to 200% FPL: Discount Plan with co-payment only
3. If family income is 201% to 350% FPL: Discount Plan at 100% of the Medicare Fee Schedule with co-payment
4. If family income is 351% FPL to 500%: Refer to Discount Policy

C. Monetary assets, excluding retirement or deferred compensation plans and include only 50% of monetary assets over $10,000, may be used to assist in to determine patient's financial eligibility.

D. Extended payment terms shall be offered of NorthBay Healthcare System. Extended payment terms are available only for obligations above and beyond the co-payment. In these cases, interest-free terms may be granted up to twelve months.

E. Healthcare services should not represent a catastrophic burden to patients and families. NorthBay Healthcare will limit annual family obligations determined using the above financial assistance guidelines to not greater than 30% of eligible annual family income for the calendar year in which services were provided.

F. Financial assistance will be considered up to twelve (12) months from the date of service. The only exception would be patients denied for Disability Medi-Cal.

G. On rare occasions, there may be circumstances where patients who would not otherwise qualify for financial assistance may be unable to pay for care provided. In these special situations, financial assistance may be granted up to designated approval levels:

1. Up to $75,000 – Director of Patient Access & Communication or Director of Patient Financial Services

2. Above $75,000 – Chief Financial Officer or Senior Director of Revenue Cycle Management

VI. PATIENT NOTIFICATION AND APPEAL RIGHTS:

A. Patients will be provided with information regarding the Charity Care and Discount Policy at the point of access. If a patient feels that they may be eligible under the policy, then they shall be referred to financial counseling for further assistance. A final determination will be made within 30 days of an application being completed and all requested documentation being submitted. Once a decision is made for the approval or denial of financial assistance, a letter will be sent to the patient as notification of the decision made. Documentation of financial assistance determinations will be kept on file in the Patient Financial Services Department. Patient statements will reflect the financial assistance determination as "Compassionate Care Discount."

B. Incomplete applications will be held for 150 days from filing or first billing, whichever comes first, before the account is referred for collection.

C. Patients who disagree with the financial assistance determination have the right to appeal the decision. Appeals must be made in writing to the Director, Patient Financial Services, NorthBay Healthcare System. A review committee consisting of Finance staff, non-Financial staff and NorthBay Administrative representatives will review appeals monthly.

VII. RELATIONSHIP TO COLLECTION PRACTICES: NorthBay Healthcare's collection policies outline the types of collection efforts that contracted collection agencies may/may not take to collect on past-due accounts. It is recognized that as part of the financial assistance process, patients may from time to time break their promise to pay made on the financial assistance application. In these instances, patients with past-due financial assistance obligations may be referred to collection in the same manner as any other patient with an unpaid past-due account might. However, in no instance will any patient receiving financial assistance under this policy be subject to abusive telephone collection practices, liens being placed on their primary residence, wage garnishments, or involuntary court hold orders.

VIII. **PUBLIC NOTICE OF FINANCIAL ASSISTANCE:** NorthBay Healthcare will post notices regarding the availability of financial assistance in all patient registration areas, in patient handbooks, at its Patient Financial Services Department, and on its website. Notices shall be posted in English and Spanish. Patients with questions about NorthBay's financial assistance program may call 707-646-5637.

APPROVED BY: _____

Art DeNio
Vice President, Chief Financial Officer