

A Community Health Needs Assessment

of the

Sutter Coast Hospital Service Area

Conducted on the behalf of:

Sutter Coast Hospital
800 E. Washington Blvd.
Crescent City, CA 95531

Conducted by:



September 2016

Acknowledgements

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

Report authored by Heather Diaz, DrPH, MPH; Dale Ainsworth, PhD, and Matt Schmidlein, PhD.

Table of Contents

Acknowledgements.....	2
Table of Contents.....	3
List of Tables	6
List of Figures	8
Report Summary	9
Introduction	9
Processes and Methods	9
Findings	11
Limitations.....	18
Conclusion.....	18
Introduction	19
Organization of this Report.....	20
Definition of the Community Served by Sutter Coast Hospital	20
General Overview of Community	21
Processes and Methods	24
Determination of Health Status – Conceptual Model.....	24
Community Health Assessment Process Model	25
Methods of Primary Data Collection and Processing	26
Collecting Primary Data.....	27
Key Informant Interviews	27
Focus Group Interviews	27
Processing Primary Data	27
Methods of Secondary Data Collection and Processing	28
Secondary Data Collection	28
Community Health Vulnerability Index (CHVI)	31
Report Processes.....	31
Identifying Geographic Locations and Subgroup Populations Experiencing Disparities	32
Identifying Significant Health Needs.....	32
Prioritizing Significant Health Needs.....	32
Findings	33
Geographic Locations and Subgroup Populations Experiencing Disparities.....	33
Prioritized, Significant Health Needs for the SCH HSA.....	33
Health Outcomes – Length and Quality of Life	40
Overall Health Status (Age-adjusted Mortality, Life Expectancy at Birth, and Years of Potential Life Lost)	40
Years of Potential Life Lost (Before age 75)	41
Premature Age-Adjusted Mortality – Number of Deaths for People Under 75	41
Child and Infant Mortality.....	42
Chronic Diseases (Diabetes, Heart Disease, Stroke, Hypertension, and Kidney Disease)	43
Diabetes	43
Heart Disease	44
Stroke, Hypertension, and Kidney Disease	45
Mental Health and Self-Inflicted Injury.....	47
Mental Health	47
Suicide and Self-Inflicted Injury	48

Unintentional Injury	49
Cancers.....	50
All-Cause Cancer Mortality	50
Cancer – Incidence by Cause.....	51
Respiratory Health – Chronic Obstructive Pulmonary Disease and Asthma	52
Chronic Obstructive Pulmonary Disease (COPD)	52
Asthma	53
Dental Health	53
Health Factors – Health Behaviors, Clinical Care, Social and Economic Factors, and the Physical Environment.....	54
Health Behaviors – Tobacco Use, Diet and Exercise, Alcohol and Drug Use, and Sexual Activity	54
Tobacco Use	54
Diet and Exercise – Obesity, Food Access, and Physical Activity	54
Obesity	54
Limited Access to Healthy Foods	55
Fast Food Restaurants.....	55
Food Deserts	55
Modified Retail Food Environment Index (mRFEI).....	56
Physical Inactivity.....	58
Access to Exercise Opportunities.....	58
Park Access.....	58
Alcohol & Drug Use	59
Adult Binge Drinking	59
Substance Abuse	59
Sexual Activity – Teen Birth Rate and STI Rates.....	60
Teen Birth Rate	60
Sexually Transmitted Infection (STI) and HIV/AIDS	61
Clinical Care – Access to Care and Quality of Care	61
Health Professional Shortage Areas and Ratios of Population to Providers	61
Primary Care Providers – Ratio of Population to Primary Care Providers	61
Health Professional Shortage Area – Primary Care	62
Mental Health Providers – Ratio of the Population to Mental Health Providers	63
Health Professional Shortage Area – Mental Health	63
Dental Care Providers – Ratio or Population to Dental Care Providers.....	64
Health Professional Shortage Area – Dental Care	64
Access to Care – Qualitative Findings	65
Health Insurance Status	66
Health Care Costs.....	66
Quality of Care – Hospitalization and Emergency Department Utilization, Preventable Hospitalizations, and Diabetes Monitoring	67
Emergency Department and Hospital Utilization	67
Preventable Hospitalizations	68
Diabetes Monitoring	68
Social and Economic Factors – Economic Stability and Community Safety	69
Economic Stability – Education and Income.....	69
Poverty – Children in Poverty, Percent of Children on Free and Reduced Lunch and Percent of Single-Parent Households	70
Poverty and Basic Needs – Qualitative Findings	71

College Attainment	71
Community Safety – Major Crime Rates, Homicide, Assault, Domestic Violence, and Motor Vehicle Accidents with Fatalities	72
Violent Crime	73
Homicide	73
Assault: Emergency Department Visits and Hospitalizations	74
Domestic Violence	75
Motor Vehicle Accidents with Fatalities	75
Physical Environment – Air and Drinking Water, Housing, and Transportation.....	76
Air Pollution – Particulate Matter	76
Drinking Water Violations.....	76
Housing & Transportation – Housing Stability, Costs, and Households with No Vehicle	77
Housing Stability	77
Cost of Housing	77
Households with No Vehicle	78
Community Expectations of Positive Outcomes – Qualitative Findings.....	79
Resources Potentially Available to Meet Significant Health Needs.....	79
Impact of Actions Taken Since the Previous CHNA.....	80
Soliciting for Public Comments	80
Limitations	81
Conclusion.....	81
Appendices.....	82

List of Tables

Table 1: Population, median age, median income, and percent minority for each ZIP code in the SCH HSA	22
Table 2: Percent of population that resided in a rural area.....	22
Table 3: Health Outcomes – Length of Life and Quality of Life	28
Table 4: Health Factors – Health Behaviors, Clinical Care, and Physical Environment.....	29
Table 5: Health Factors – Socio-Economic and Demographic	30
Table 6: Remaining health outcome and health factor indicators and their sources	30
Table 7: Indicators included in the CHVI	31
Table 8: Overall health status indicators – Age-adjusted all-cause mortality and life expectancy at birth compared to county, state, and national benchmarks.....	40
Table 9: Premature age-adjusted mortality (under 75) per 100,000 population by county compared to state benchmarks	42
Table 10: Mortality, ED visit, and hospitalization rates for diabetes compared to county, state, and Healthy People 2020 benchmarks (rates per 10,000 population).....	43
Table 11: Mortality, ED visit and hospitalization rates for heart disease compared to county, state, and Healthy People 2020 benchmarks (rates per 10,000 population).....	44
Table 12: Mortality, ED visit, and hospitalization rates for stroke compared to county, state, and Healthy People 2020 benchmarks (rates per 10,000 population)	45
Table 13: Mortality, ED visit and hospitalization rates for hypertension compared to county and state benchmarks (rates per 10,000 population)	46
Table 14: Rate of mortality due to hypertension (per 100,000) for Curry and Del Norte Counties compared to the state benchmarks	46
Table 15: Mortality, ED visits and hospitalization rates for kidney diseases compared to county and state benchmarks (rates per 10,000 population)	47
Table 16: ED visit and hospitalization rates due to mental health issues compared to county and state benchmarks (rates per 10,000 population)	48
Table 17: Mortality rates due to suicide and ED visits and hospitalization rates due to self-inflicted injury compared to county, state, and Healthy People 2020 benchmarks (rates per 10,000 population)	49
Table 18: Mortality, ED visit, and hospitalization rates due to unintentional injury compared to county, state and Healthy People 2020 benchmarks (rates per 10,000 population).....	50
Table 19: Mortality due to CLRD, ED visit and hospitalization rates due to COPD, compared to county, state and Healthy People 2020 benchmarks (rates per 10,000 population).....	52
Table 20: ED visits and hospitalizations due to asthma (per 10,000 population)	53
Table 21: ED visit and hospitalization rates due to dental issues compared to county and state benchmarks (rates per 10,000 population)	53
Table 22: Self-reported BMI for the determination of percent obese for Curry and Del Norte Counties in comparison to the state benchmark rate.....	55
Table 23: Percent of population with limited access to healthy foods	55
Table 24: Proportion of restaurants that were fast food	55
Table 25: Percent of adults reporting no physical activity for Del Norte and Curry Counties compared to state benchmarks	58
Table 26: Percent of population with access to exercise opportunities for Del Norte and Curry Counties compared to state benchmarks.....	58
Table 27: Percent of population within 1/2 mile of park for Del Norte and Curry Counties compared to state benchmarks	58

Table 28: Self-reported adult heavy or binge drinking in the past year for Del Norte and Curry Counties compared to the state benchmarks	59
Table 29: ED visit and hospitalization rates due to substance abuse issues compared to county and state benchmarks (rates per 10,000 population)	59
Table 30: Incidence of chlamydia and HIV prevalence for Del Norte and Curry counties compared to the state and national rates (per 100,000)	61
Table 31: Percent uninsured by ZIP code compared to county and state benchmarks	66
Table 32: Total ED visits and hospitalizations by geographical areas for the SCH HSA	67
Table 33: Percent adults with no high school diploma, living below 100% federal poverty level, median household income, percent on public assistance, and percent unemployed by ZIP code compared to county and state benchmarks	70
Table 34: Violent crime (per 100,000 population) by county for the SCH HSA	73
Table 35: Housing vacancy, people living per housing unity, and percent of population renting by ZIP code	77
Table 36: Resources potentially available to meet significant health needs in priority order	80

List of Figures

Figure 1: SCH HSA	21
Figure 2: Population density for the SCH HSA	23
Figure 3: Diversity index for SCH HSA	24
Figure 4: SCH Community Health Assessment Conceptual Model as modified from the County Health Rankings Model, Robert Wood Johnson Foundation, and University of Wisconsin, 2015	25
Figure 5: 2016 CHNA process model.....	26
Figure 6: CHVI results for SCH HSA	33
Figure 7: Prioritized, significant health needs for SCH.....	34
Figure 8: Years of Potential Life Lost (< 75 years of age) for Del Norte and Curry Counties	41
Figure 9: Child Mortality (per 100,000) and Infant Mortality (per 1,000 live births)	42
Figure 10: Diabetes prevalence – Percent of population with diabetes.....	44
Figure 11: All-cause cancer mortality in the SCH HSA	51
Figure 12: Cancer incidence by cause for the SCH HSA	51
Figure 13: USDA defined food deserts for SCH HSA	56
Figure 14: Modified Retail Food Environment Index (mRFEI) for the SCH HSA.....	57
Figure 15: Teen birth rate for 15-19 year olds for the SCH HSA	60
Figure 16: Primary care providers in the SCH HSA.....	62
Figure 17: HPSA for Primary Care for the SCH HSA	62
Figure 18: Mental health care providers in the SCH HSA	63
Figure 19: Mental health HPSAs for the SCH HSA.....	63
Figure 20: Dental care providers for the SCH HSA	64
Figure 20: Dental health HPSA for SCH HSA	64
Figure 22: Health Care cost per Medicare enrollee	67
Figure 23: Preventable hospital stays for the SCH HSA	68
Figure 24: Diabetic Monitoring in the SCH HSA	69
Figure 25: Children in poverty, FRLP, and single parent households for the SCH HSA.....	70
Figure 26: College attainment in the SCH HSA	72
Figure 27: Homicides per 100,000 population in the SCH HSA	73
Figure 28: ED visits related to assault in SCH HSA	74
Figure 29: Domestic violence in SCH HSA	75
Figure 30: Motor vehicle accidents with a fatality in the SCH HSA	76
Figure 31: Air quality – particulate matter for the SCH HSA.....	76
Figure 32: Housing costs more than 30% of income in the SCH HSA	78
Figure 33: Households with no vehicle in the SCH HSA	78

Report Summary

Introduction

Both state and federal law require that nonprofit hospitals conduct a community health needs assessment (CHNA) every three years to identify and prioritize the significant health needs of the communities they serve. The results of the CHNA guide the development of implementation plans aimed at addressing identified health needs.

Federal regulations define a *health need* accordingly: “...health needs include requisites for the improvement or maintenance of health status in both the community at large and in particular parts of the community (such as particular neighborhoods or populations experiencing health disparities)” (p. 78963).¹

This report documents the processes, methods, and findings of a CHNA conducted on behalf of Sutter Coast Hospital (SCH), a Sutter Health affiliate hospital located in Crescent City, California. The CHNA was conducted over a period of five months, beginning in March 2016, and concluding in July 2016. Specifically, the objective of the 2016 CHNA was:

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

SCH is located in Crescent City, California, a coastal community located in Del Norte County, which sits on the northwest California/Oregon border. The community served by SCH, or the hospital service area (HSA), was defined by five ZIP codes noted in the figure and table below. This area was identified as the HSA because most of SCH’s patients resided in these ZIP codes. All ZIP codes are located in California except 97415, which covers the communities of Brookings and Harbor, located in southern Curry County, OR. The SCH HSA was home to 42,503 community residents in 2013.

Processes and Methods

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

Data collected and analyzed included both primary or qualitative data, and secondary or quantitative data. Primary data included 15 interviews with 22 community health experts as well as eight focus groups conducted with 99 community residents (see Appendices F and G). Secondary data included health outcome and health factor indicators. Health outcome indicators included a variety of

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

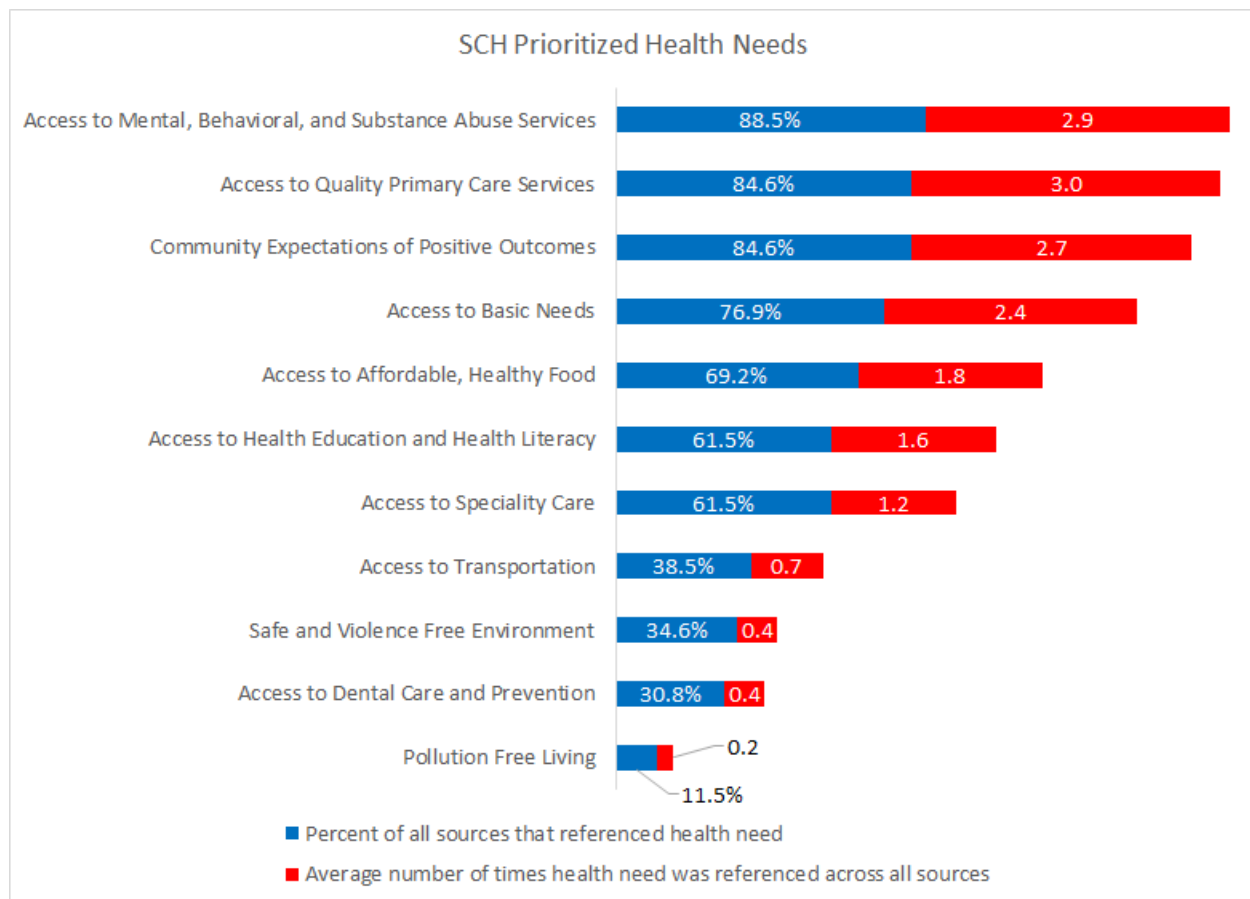
measures of both mortality and morbidity. Health factor indicators included measures of 1) health behaviors such as diet and exercise, tobacco, alcohol, and drug use; 2) clinical care including measures of access to and quality of care; 3) social and economic factors such as race/ethnicity, income, educational attainment, employment, and similar; and 4) the physical environment measures such as air and water quality, housing characteristics and more. Following federal requirements, primary and secondary data were analyzed to identify locations and populations within the HSA that experience a greater burden of poor health outcomes, as well as to identify and prioritize the significant health needs within the HSA as a whole.



ZIP Code	Community Area	Population	Median Age	Median Income (\$)	Percent Minority	Percent Native American (Alone or in Combination with Some Other Race)
95531	Crescent City	24,687	37.9	\$39,486	34.4	9.3
95543	Gasquet	549	54.5	\$29,038	27.3	4.6
95548	Klamath	1,398	40.9	\$27,243	61.4	35.8
95567	Smith River	1,723	47.1	\$43,125	37.7	12.7
97415	Brookings, OR	14,146	53.6	\$42,045	12.7	5.2
<i>Del Norte County</i>	<i>County</i>	<i>28,357</i>	<i>39.1</i>	<i>\$37,909</i>	<i>35.8</i>	<i>10.7</i>
<i>Curry County</i>	<i>County</i>	<i>22,361</i>	<i>53.8</i>	<i>\$39,516</i>	<i>11.9</i>	<i>4.2</i>
<i>CA State</i>	<i>State</i>	<i>37,659,181</i>	<i>35.4</i>	<i>\$61,094</i>	<i>60.3</i>	<i>1.8</i>
<i>OR State</i>	<i>State</i>	<i>3,868,721</i>	<i>38.7</i>	<i>\$50,229</i>	<i>22.0</i>	<i>2.9</i>

Findings

Primary and secondary data were analyzed to identify and prioritize the significant health needs for the SCH HSA. This analysis began by identifying 10 potential health needs (PHNs) common across many previously conducted CHNAs that could be identified in these communities. Data were analyzed to discover which, if any, of these PHNs were present in the SCH HSA. All of the 10 PHNs were identified as significant health needs with one additional health need added as a result of qualitative data findings. This resulted in a total of 11 significant health needs. These 11 needs were prioritized based on an analysis of primary data sources. The results of this prioritization are shown in the figure below. The length of the bar denotes prioritization, with longer lengths corresponding to higher priorities. In the figure, the blue portion of the bar notes the percent of all primary data sources that referenced the PHN as a current, significant health need. This was combined with the average number of times that each potential health need was referenced among all primary data sources and is displayed in the red portion of the bar.



The identified significant health needs for the SCH HSA are listed below in prioritized order. Secondary data indicators that had undesirable rates in either Del Norte or Curry County were included and are listed in the table below each significant health need. Qualitative themes that emerged during analysis are also provided in the table.

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

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

Quantitative Indicators	Qualitative Themes
<ul style="list-style-type: none"> Percent of adults who report excessive drinking Percent of adults without social/emotional support Population per mental health service provider Health Professional Shortage Area – Mental Health 	<ul style="list-style-type: none"> Lack of mental health providers (Psychiatrists, psychologist, behavioral specialist) Only psychiatric treatment in the area is via telemedicine Lack of veteran mental health/behavioral health services Difficult to attract mental health providers to area to practice and stay in the Sutter Coast HSA High rate of PTSD due to trauma History of trauma in community – community and personal level trauma

- Personal trauma related to poverty, unemployment, and domestic abuse
- High rates of suicide in adults and kids
- Substance abuse – including prescription drugs
- Waiting months for mental health care appointment
- Coast is a location for people wanting to “live off the grid” often struggle with substance abuse and mental illness
- Need “wrap around support services” to help positive mental health
- Generational poverty, substance use and abuse
- County services are limited, few county providers
- Need detox center/inpatient residential treatment center in HSA
- Need more early intervention work in the schools
- Drugs and alcohol related to domestic violence
- Feelings of hopelessness among community members
- Visible signs of homelessness in the community
- Traveling long distances for care
- Isolation of the area contributes to high drug abuse and mental illness
- Depression in community members with diabetes

2. Access to Quality Primary Care Health Services

The second highest priority significant health need for the SCH HSA was access to quality primary care health services. Primary care resources include community clinics, pediatricians, family practice physicians, internists, nurse practitioners, pharmacists, telephone advice nurses, and similar. Primary care services are typically the first point of contact when an individual seeks healthcare. These services are the front line in the prevention and treatment of common diseases and injuries in a community.

Quantitative Indicators	Qualitative Themes
<ul style="list-style-type: none"> • Rate of preventable hospital stays • Percent of people unable to see a doctor due to cost • Percent of population under 65 without insurance • Ratio of population to primary care providers • Percent of females that receive mammogram screening • Health Professional Shortage Area – Primary Care • Percent of population with diabetes • Rate of mortality due to heart disease • Rate of mortality due to hypertension • Rate of mortality due to kidney disease • Rate of mortality due to stroke • Rate of mortality due to cancer • Incidence rate of lung and bronchial cancer 	<ul style="list-style-type: none"> • Transiency of providers effects coordination of care for patients • Medical care system at capacity for population living in HSA • Lack of local providers adds stress on ER for primary care • Wait time for appointments/referrals is long • Patients must travel out of area long distances to receive care • Recruiting and maintaining medical professionals is difficult • Providers come in and serve their time (paying off student loan debt) then leave • Lack of bilingual providers in the HSA • Lack of providers results in very few taking Medi-Cal (Medicaid) or Covered CA plans • Area lacks providers with extensive expertise/specialty care • Out of pocket cost for care is high • Relationship between hospital and community needs mending • More permanent health care providers with greater continuity with patients is needed • Major lack of OB providers in the area • Major lack of specialty providers in the area

3. Community Expectations of Positive Outcomes

The third highest priority significant health need for the SCH HSA was labeled “Community Expectations of Positive Outcomes.” This need was identified in the qualitative data and was so prevalent in the findings that it was added as a significant health need. The expectations and attitudinal beliefs of community members greatly shape how they work, play, access services, and feel about their community. Participants consistently spoke about the need for a collaborative based community driven approach to develop a clearer vision for the Sutter Coast community. Providers and community members have high expectations for the area in terms of its ability to thrive economically and socially. This need describes many of the specifics that were expressed by participants that would help enhance the living conditions of the Sutter Coast HSA.

Qualitative Themes

- Loss of deep-rooted fishing and logging industries resulted in the need for a new identity a community
- Feelings of hopelessness about the ability to change the economic and educational opportunities in the area
- In need of clear partnership among care providers; leadership empowerment and increased community engagement in all sectors, especially with the local hospital system
- Clarity on the “mission” of the local health care system to care for area residents
- Expectation for area care providers to build and maintain positive relationships with patients
- Many providers come to the area, but leave after a short period of time
- “Why do they leave?” – Need for strategies/incentives to recruit and retain thriving businesses and care providers in the HSA
- Need increased cross-Oregon-border collaboration for care services
- Limited resources in the area contributes to working in silos among area providers

4. Access to Basic Needs, such as Housing and Employment

The fourth highest priority significant health need for the SCH HSA was access to basic needs such as housing and jobs. Access to affordable and clean housing, stable employment, quality education, and adequate food for health maintenance are vital for survival. Maslow’s *Hierarchy of Needs*² demonstrates that only when members of a society have their basic physiological and safety needs met can they become engaged members of society and self-actualize or live to their fullest potential, including their health.

Quantitative Indicators

- Percent of people unable to see a doctor due to cost
- Percent of adults without social/emotional support
- Percent of population under 65 without insurance
- Percent of children eligible for free and reduced lunch
- Percent of children under 18 living in poverty
- Rate of deaths in children under 18 years of age
- Percent of children in single parent households
- Infant mortality rate

Qualitative Themes

- High unemployment
- Limited economic development and opportunity in HSA – Logging and fishing industries have diminished
- Little job availability
- Lacking in adequate economic opportunities and resources for residents
- Low educational attainment
- High poverty – generational poverty
- Homelessness – including young homeless populations
- Services for homeless are limited
- Housing is expensive – rental prices are high, limited affordable housing available, home prices are high

² McLeod, S. (2014). *Maslow’s Hierarchy of Needs*. Retrieved from: <http://www.simplypsychology.org/maslow.html>

<ul style="list-style-type: none"> • Rate of pre-mature age adjusted mortality • Percent of population unemployed • Years of potential life lost • Percent of population 25-44 years old with some college • Percent of population that graduates high school in 4 years • Median household income 	<ul style="list-style-type: none"> • Residents often stay in substandard housing for fear of ending up homeless • High poverty often contributes to isolation
--	---

5. Access to Affordable, Healthy Food

The fifth highest priority significant health need for the SCH HSA was access to affordable, healthy foods. Eating a healthy diet is important for one's overall health and well-being. When access to healthy foods is challenging for community residents, many turn to unhealthy foods that are convenient, affordable, and readily available. Communities experiencing social vulnerability and poor health outcomes often are overloaded with fast food and other establishments where unhealthy food is sold.

Quantitative Indicators	Qualitative Themes
<ul style="list-style-type: none"> • Percent of population with diabetes • Rate of mortality due to heart disease • Rate of mortality due to hypertension • Rate of mortality due to kidney disease • Rate of mortality due to stroke • Rate of mortality due to cancer • Incidence rate of lung and bronchial cancer • Percent of population in poverty far from a grocery store • Modified Retail Food Environment Index (mRFEI) 	<ul style="list-style-type: none"> • Many residents are food insecure, families are hungry • Access to healthy food is difficult – few grocery stores in HSA • Community members need increased food literacy in what to eat and how to prepare healthy foods • Healthy food is expensive and there are limited options • Increased “food transportation” – transportation to get to areas of the HSA with healthy and affordable food options. • City centers contain a large number of convenience food – food swamp • Important to help folks maintain healthy traditional growing and eating food practices • Improvement to school nutrition programs • Increase growth of agriculture (organic/local) food sources – increase farmers markets • Community nutrition education

6. Health Education and Health Literacy

The sixth highest priority significant health need for the SCH HSA was health education and health literacy. Knowledge is important for individual health and well-being, and health education interventions are powerful tools to improve community health. When community residents lack adequate information on how to prevent, manage, and control their health conditions, those conditions tend to worsen. Health education in infectious disease control (e.g. STI prevention, influenza shots) and intensive health promotion and education strategies on the management of chronic diseases (e.g. diabetes, hypertension, obesity, and heart disease) are important for community health improvement. Health literacy pertains to the extent that people have the knowledge and ability to obtain, process, and understand health information and services needed to make appropriate health decisions.³ Health

³ Almadier-Douglas, D. (2013). *Health Literacy*. National Network of Libraries of Medicine. Retrieved from <https://nnlm.gov/outreach/consumer/hlthlit.html>

knowledge and education is important, but equally important is health literacy where people have the knowledge and ability to understand health information and are able to navigate the health care system.

Quantitative Indicators	Qualitative Themes
<ul style="list-style-type: none"> • Percent of population with diabetes • Rate of mortality due to heart disease • Rate of mortality due to hypertension • Rate of mortality due to kidney disease • Rate of mortality due to stroke • Percent of adults that smoke • Rate of motor vehicle crash deaths • Percent adults with no physical activity • Percent of adults who report excessive drinking • Percent of adults that are obese • Teen birth rate (births to 15-19 year olds) • Rate of mortality due to unintentional injury 	<ul style="list-style-type: none"> • Need education and literacy on how to seek and navigate health care services • Lack of primary care and specialty care in the area makes this a necessity • Increased need for preventive health education to help keep residents healthy – prevent disease and injury • Increased need for health education around food literacy • Need for tobacco prevention and cessation • More health education/ physical education in schools • Need health education on teen pregnancy prevention • Limited diabetes education in the HSA

7. Access to Specialty Care

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

Quantitative Indicators	Qualitative Themes
<ul style="list-style-type: none"> • Percent of population with diabetes • Rate of mortality due to heart disease • Rate of mortality due to hypertension • Rate of mortality due to kidney disease • Rate of mortality due to stroke • Rate of preventable hospital stays 	<ul style="list-style-type: none"> • Increased access to specialty care is important for HSA • Patients must travel far – often out of area for care • Aging population often delay care due to lack of specialists in area • Lacking in specialists – consistent mention of pediatricians, obstetricians, urologists, endocrinologists • No dialysis care in the area • Younger population in area are developing chronic diseases • Community members often move out of the area when they become ill to receive consistent care – primary and specialty care

8. Access to Transportation

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

Qualitative Themes
<ul style="list-style-type: none"> • Rural area makes transportation difficult • Distance from one service to the other is hard – creates financial and time barriers to being healthy • Some residents buy transportation services with their medical dollars • Poor weather conditions make transportation out of the area for care exceptionally difficult

- Limited public transportation infrastructure
- Few streets have sidewalks for navigating through the area
- Poverty prevents many residents from having reliable transportation
- Transportation for specialty care is often out of the HSA and one way; patients have trouble getting back home after care is complete

9. Safe and Violence-Free Environment

The ninth highest priority significant health need for the SCH HSA was a safe and violence-free environment. Feeling safe in one's home and community are fundamental to overall health. Next to having basic needs met (food, shelter, clothing) is physical safety. Feeling unsafe affects the way people act and react to everyday life occurrences.

Quantitative Indicators	Qualitative Themes
<ul style="list-style-type: none"> • Rate of motor vehicle crash deaths • Percent adults with no physical activity • Rate of homicides • Rate of people with access to a recreational facility • Percent of population with access to a park 	<ul style="list-style-type: none"> • High rates of domestic abuse in HSA • Isolation resulting in violence • High rate of referrals to Children Services in HSA • Lack of mental health care in the area exacerbates domestic and community violence episodes

10. Access to Dental Care and Prevention

The tenth priority significant health need for SCH HSA was access to dental care and prevention. Oral health is important for overall quality of life. When individuals have dental pain it is difficult to eat, concentrate and fully engage in life. Poor oral health impacts the health of the entire body, especially the heart, digestive, and endocrine systems.

Quantitative Indicators	Qualitative Themes
<ul style="list-style-type: none"> • Ratio of population per dentist • Health Professional Shortage Area – Dental 	<ul style="list-style-type: none"> • Lack of dental providers in the HSA • Recruiting and maintaining dental health professionals in the area is difficult • No dentists take Medicaid in Brookings • Must travel outside of HSA to receive adequate dental care • Dental care and prevention for children is inadequate to meet needs of population • Patients with Medi-Cal (Medicaid) receive inadequate care resulting in the pulling of teeth rather than restorative care

11. Pollution-Free Living Environment

The eleventh priority significant health need for SCH HSA was a pollution-free living environment. Living in a pollution-free environment is essential for health. Individual health is determined by a number of factors, and some models show that one's living environment, including the physical (natural and man- one's made) and socio-cultural environment, has more impact on individual health than lifestyle, heredity, or access to medical services.⁴

⁴ See Blum, H. L. (1983). *Planning for Health*. New York: Human Sciences Press

Quantitative Indicators	Qualitative Themes
<ul style="list-style-type: none"> • Percent of adults that smoke • Rate of mortality due to cancer • Incidence rate of lung and bronchial cancer • Air quality – average daily particulate matter • Asthma – ED visits 	<ul style="list-style-type: none"> • High moisture in the area resulting in respiratory issues • Mold in housing units and community dwellings

Limitations

Study limitations included challenges obtaining secondary data and ensuring community representation via primary data collection. The multi-state nature of the HSA provided challenges in identifying consistent sources of sub-county resolution data, and lower granularity county data was used as the basis for most health need analysis. Most data used in this assessment were not available by race/ethnicity. In addition, data on behavioral issues and conditions like obesity were both difficult to obtain at the sub-county level and were not available by race and ethnicity. Data timeliness was also a challenge, because some data represent different years. However, these are clearly noted to allow for proper data comparison.

Conclusion

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

Introduction

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

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

The Department of Treasury, Internal Revenue Service, issued final regulations effective December 29, 2014, that specify the requirements regarding nonprofit or charitable hospitals conducting a CHNA. These regulations define a health need accordingly: "...health needs include requisites for the improvement or maintenance of health status in both the community at large and in particular parts of the community (such as particular neighborhoods or populations experiencing health disparities)"⁵. The proposed regulations go on to describe requisites for the improvement or maintenance of health status, and indicate that these include "...not only the need to address financial and other barriers to care but also the need to prevent illness, to ensure adequate nutrition, or to address social, behavior, and environment factors that influence health in the community" (p. 78963). Further, the final regulations specify that nonprofit hospitals may build upon a previously conducted CHNA, rather than create a new CHNA every three years.

This report documents the processes, methods, and findings of a CHNA conducted on behalf of Sutter Coast Hospital (SCH), a Sutter Health affiliate hospital located in Crescent City, California. The CHNA was conducted over a period of seven months, beginning in March 2016 and concluding in September 2016. Building on federal and state requirements, the objective of the 2016 CHNA was:

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

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

1. What are the geographic locations or population subgroups of specific concern within the HSA?
2. What is the current health status of residents in the hospital's service area?

⁵ *Federal Register*, Vol. 79, No. 250, (Wednesday, December 31, 2014). Department of the Treasury, Internal Revenue Service.

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

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

Organization of this Report

Following federal guidelines issued on how to document a CHNA, this report is organized as follows: First, the community served by SCH and how the community was identified is described. Second, the methods used to conduct the CHNA are described, including how data were collected and analyzed, and a listing of all parties with which SCH collaborated to conduct the assessment is provided. Third, a description of how SCH solicited and considered the input received from persons who represented the broad interests of the community served follows, including a summary of the input received, the time period in which it was received, and a listing of organizations that provided input, including the populations represented by the organization. Following, the prioritized listing of significant health needs identified through the CHNA is described, along with a description of the process and criteria used in identifying and prioritizing these needs. Next, both health outcome and health factor indicators are reviewed in detail for specific areas of SCH HSA. Resources potentially available to meet the needs are identified and described, followed by a summary of the impact of actions taken by SCH to address significant health needs identified in its previous CHNA, which was conducted in 2013.

Definition of the Community Served by Sutter Coast Hospital

SCH is located in Crescent City, California, a coastal community located in Del Norte County, which sits on the northwest California/Oregon border. The community served by SCH, or the hospital service area (HSA), was defined by five ZIP codes noted in the Figure 1 and Table 1. This area was identified as the HSA as most of SCH's patients resided in these ZIP codes. All ZIP codes are located in California except 97415, which covers the communities of Brookings and Harbor, located in southern Curry County, OR. The SCH HSA was home to 42,503 community residents in 2013. Large communities located in the HSA include Brookings and Harbor (both in Oregon), and Smith River, Fort Dick, Gasquet, Hiouchi, Crescent City, and Klamath in California. The HSA is depicted in Figure 1. As shown in the legend, black lines denote ZIP code boundaries that are included in the SCH HSA.



Figure 1: SCH HSA

General Overview of Community

Population characteristics for each ZIP code that comprised the SCH HSA are presented in Table 1. (NOTE: All population counts used in this report include incarcerated prisoners at Pelican Bay State Prison.⁶)

⁶ As of September 2016 there were 2,254 prisoners incarcerated at Pelican Bay State Prison, or approximately 5% of the service area population. For more detailed information on the prison population see: http://www.cdcr.ca.gov/Reports_Research/Offender_Information_Services_Branch/Population_Reports.html.

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

ZIP Code	Community Area	Population	Median Age	Median Income (\$)	Percent Minority	Percent Native American (Alone or in Combination with Some Other Race)
95531	Crescent City	24,687	37.9	\$39,486	34.4	9.3
95543	Gasquet	549	54.5	\$29,038	27.3	4.6
95548	Klamath	1,398	40.9	\$27,243	61.4	35.8
95567	Smith River	1,723	47.1	\$43,125	37.7	12.7
97415	Brookings, OR	14,146	53.6	\$42,045	12.7	5.2
<i>Del Norte County</i>	<i>County</i>	<i>28,357</i>	<i>39.1</i>	<i>\$37,909</i>	<i>35.8</i>	<i>10.7</i>
<i>Curry County</i>	<i>County</i>	<i>22,361</i>	<i>53.8</i>	<i>\$39,516</i>	<i>11.9</i>	<i>4.2</i>
<i>CA State</i>	<i>State</i>	<i>37,659,181</i>	<i>35.4</i>	<i>\$61,094</i>	<i>60.3</i>	<i>1.8</i>
<i>OR State</i>	<i>State</i>	<i>3,868,721</i>	<i>38.7</i>	<i>\$50,229</i>	<i>22.0</i>	<i>2.9</i>

The HSA was home to 42,503 residents in 2013. Median age varied from a low of 37.9 years for ZIP code 95531 (Crescent City) to a high of 54.5 in ZIP code 95543 (Gasquet). Median income ranged from \$27,243 for ZIP code 95548 (Klamath), to \$43,125 for 95567 (Smith River). Further, the majority of residents in 95548 (Klamath) were Non-White or Hispanic, many of whom were Native American. As Table 1 shows, the ZIP code with the highest percentage of population that is Native American was 95548 (Klamath) at 35.8%.

Table 2 shows the percent of population that resided in a rural area for both Del Norte and Curry Counties. As the data indicate, both counties had a high percentage of people that reside in rural areas.

Table 2: Percent of population that resided in a rural area

Geographic area	Percent of population in rural area
Del Norte County	33.7
Curry County	38.7
<i>CA State</i>	<i>5.0</i>
<i>OR State</i>	<i>19.0</i>

Figure 2 shows the population density in the SCH HSA. As the figure shows, most of the area residents lived in the Crescent City, Brookings, Harbor, and Klamath areas. The areas of Brookings and Crescent City were clearly the most densely populated.

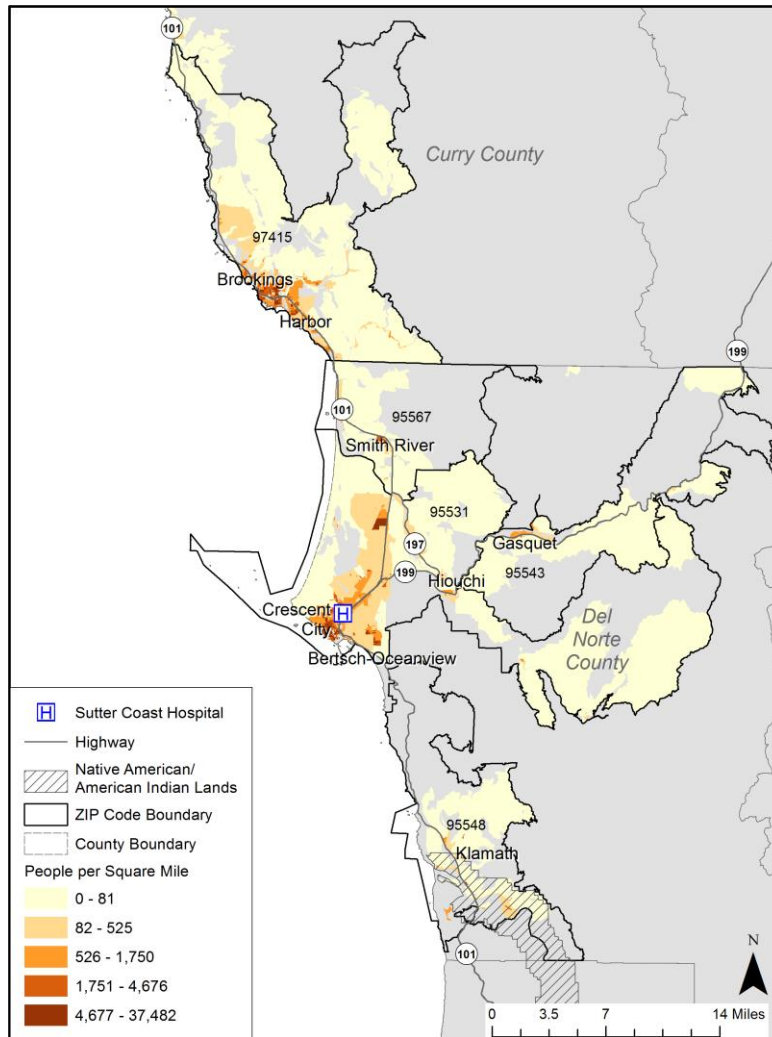


Figure 2: Population density for the SCH HSA

The HSA was rich in racial and ethnic diversity as is shown in Figure 3. Areas with index values closer to one indicated a population more evenly divided between race and ethnic groups. In the figure, census tracts within each ZIP code in the HSA are highlighted with different colors to show different values of the diversity index. Darker colored census tracts have a higher diversity index, and thus more diverse populations.

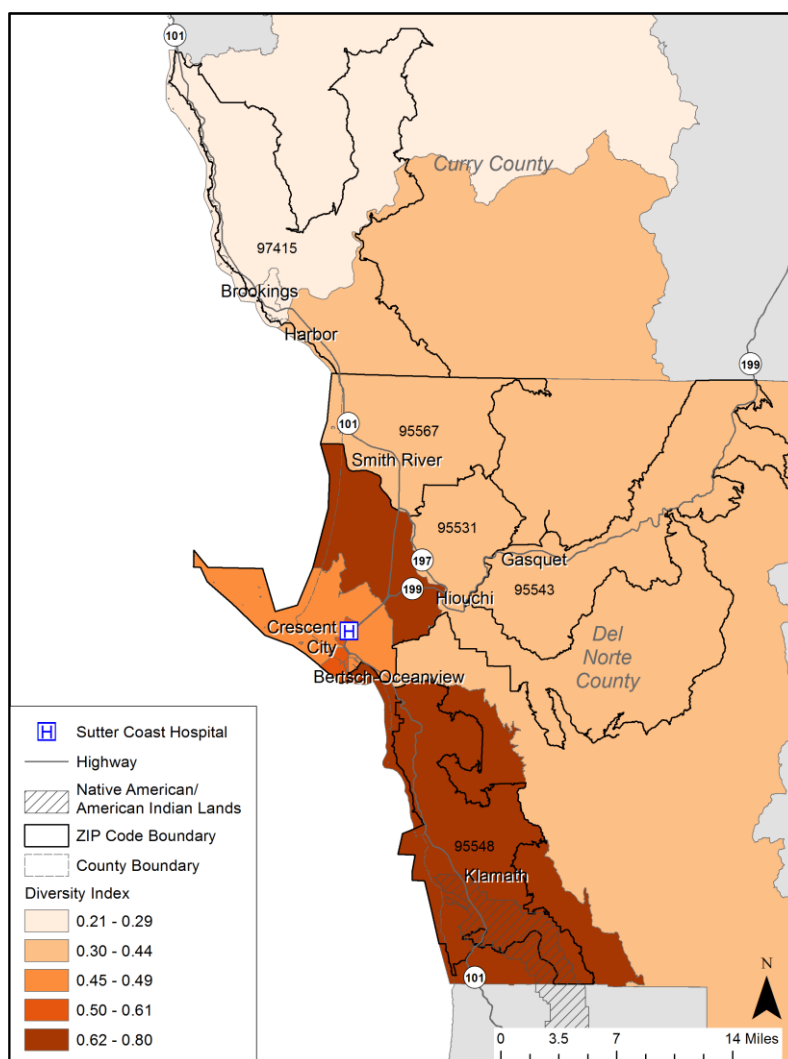


Figure 3: Diversity index for SCH HSA

The areas of Klamath, Fort Dick, and Bertsch-Oceanview had the highest diversity index score in the HSA. Crescent City had a score that fell into the second highest diversity score category.

Processes and Methods

Determination of Health Status – Conceptual Model

The conceptual model used to support and organize this CHNA was based on a model of population health that includes many of the factors that impact individual health and well-being. Building on the work of America's Health Rankings, the model was developed by the University of Wisconsin's Population Health Institute and is used by the Robert Wood Johnson Foundation's widely known County Health Rankings.⁷ The model includes health indicators organized into health outcomes and health factors, and then further organized into smaller categories such as morbidity and mortality,

⁷ Robert Wood Johnson Foundation. (2015). *Our Approach: County Health Rankings*. Retrieved from <http://www.countyhealthrankings.org/our-approach>

health behaviors, clinical care, social and economic factors, and the physical environment. Counties across the nation are then ranked based on each of the indicators in the model in an attempt to compare the health status of one county to another. The creators of the model write:

*Helping communities become healthier places to live, learn, work, and play means attending to many interrelated factors. These include health factors such as access to clinical care and improvements in healthy behaviors, such as diet and exercise, but also social and economic factors, such as neighborhood safety, employment, housing, and transit. By monitoring these factors, we can identify avenues to create and implement evidence-informed policies and programs that improve community well-being and health.*⁸

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

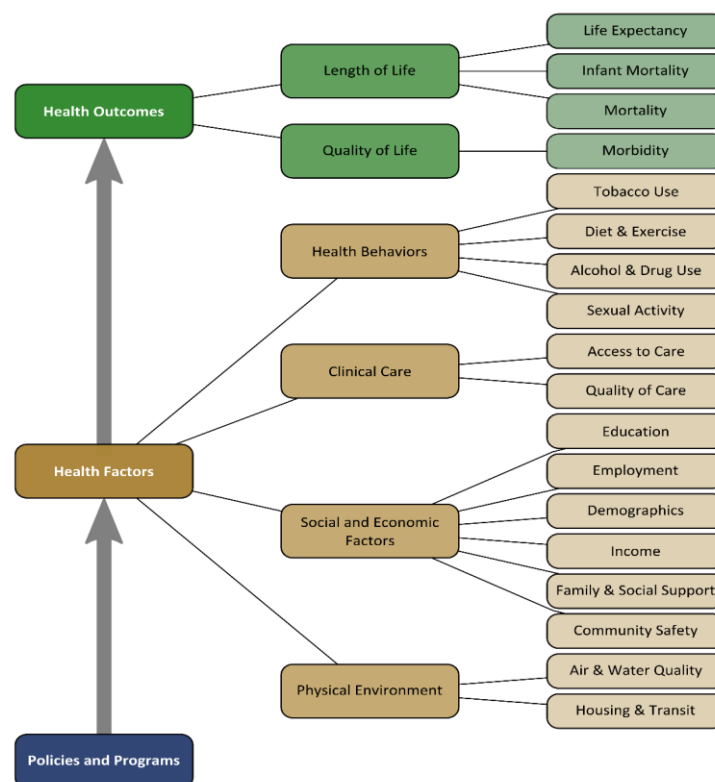


Figure 4: SCH Community Health Assessment Conceptual Model as modified from the County Health Rankings Model, Robert Wood Johnson Foundation, and University of Wisconsin, 2015

Community Health Assessment Process Model

As illustrated in Figure 5, the project was conducted using alternating data collection and analysis stages. The project began with a definition of the HSA based on the definition used for the previous 2013 CHNA, as well as a review of hospital patient data. Area-wide primary and secondary data

⁸ Catlin, B. (2014). "The County Health Rankings: A Treasure Trove of Data" in *What Counts: Harnessing Data for America's Communities*. Federal Reserve Bank and Urban Institute.

were then collected for the defined HSA. Primary data included interviews of multiple key informants who were selected based on their ability to speak to conditions across the HSA. Secondary data included the health factor and health outcome indicators described in detail in Appendix A, as well as the Community Health Vulnerability Index (CHVI) values for each census tract in the HSA.

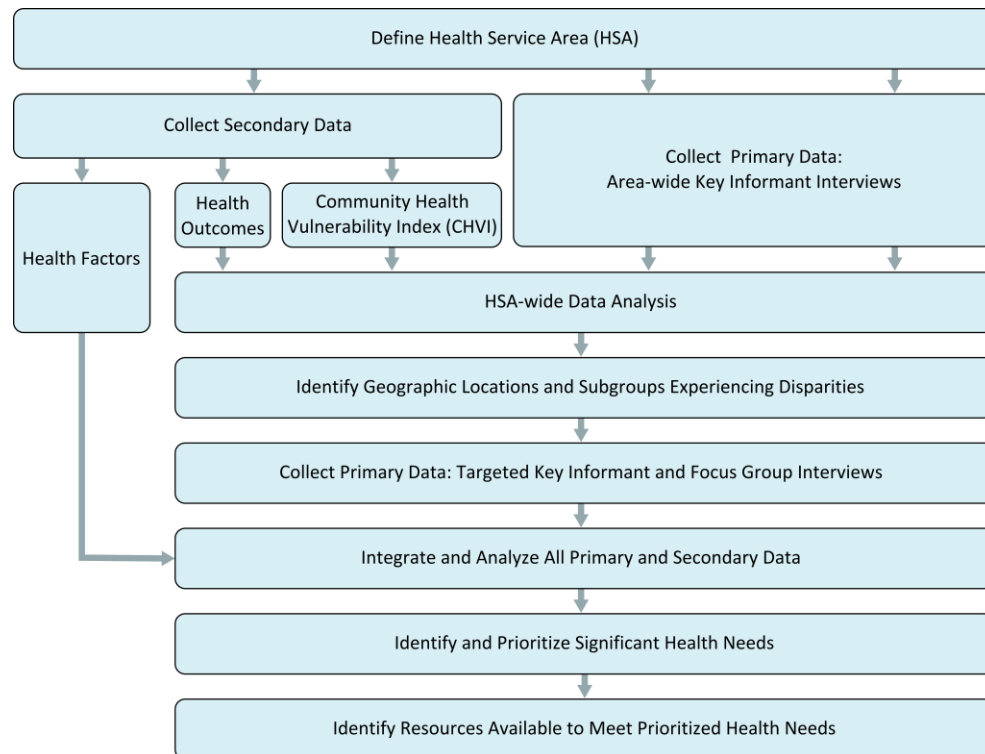


Figure 5: 2016 CHNA process model

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

Methods of Primary Data Collection and Processing

Input from the community was collected through two main mechanisms: key informant interviews with community health experts and service providers, and focus group discussions with community members. Instruments used in primary data collection included a participant informed consent, an interview question guide, a project summary sheet, and a reflection sheet. Informed consent was obtained either verbally or through an informed consent form. In either case, participants were provided information about the project, asked for permission to record the interview, and listed the potential benefits and risks for involvement in the interview (Appendix C). The interview question guide was used for both the key informant and focus group interviews (Appendix D). The project summary sheet (Appendix E) was given to participants to provide them with information about the

project and contact information for CHNA staff. After the interview or focus group was conducted, the facilitator captured the main findings by completing a reflection sheet.

Collecting Primary Data

Primary data were collected between March and September 2016. Federal guidelines specify that in conducting a CHNA input must be taken from “...persons representing the broad interests of the community.”⁹ The guidelines define these individuals as 1) individuals that are part of the local health department or equivalent agency, and 2) members of medically underserved, low-income, and minority populations or individuals representing the interests of these populations. Using these criteria, key informants were identified and solicited for participation. Focus groups were identified and/or solicited for participation in a number of ways: 1) participation was solicited in some areas via public notice (Curry County, OR only), and 2) key informants and other community health experts were solicited to facilitate the convening of focus groups with populations they served.

Key Informant Interviews

Key informant interviews were conducted with area service providers and experts representing the broad interests of the community who were familiar with the populations in the HSA (for a listing see Appendix F). Primary data collection began by interviewing area-wide service providers with knowledge of the SCH HSA, including input from both the Del Norte Public Health Department and Curry Community Health. Findings from the area-wide informants were combined with quantitative data showing locations of populations experiencing disparities to identify and interview key informants with knowledge about these specific populations and locations. These targeted primary data sources were selected based on their knowledge of the needs of particular geographic locations and/or subgroups experiencing disparities. A total of 15 key informant interviews were completed with 22 service providers. The key informant interviews were used to identify additional key service providers to include in the assessment, as well as to identify specific populations that should be included in the focus group interviews.

Focus Group Interviews

Focus group interviews were conducted with community members living in geographic areas of the HSA with, or representing groups experiencing a disparate amount of poor socio-economic conditions and poor health outcomes. Recruitment consisted of referrals from designated service providers representing vulnerable populations in the SCH HSA, as well as direct outreach from CHI to acquire input for a special population group. Eight focus group discussions were conducted with a total of 99 community members (a listing can be found in Appendix G)

Processing Primary Data

After each interview was completed, the interview recording was sent to a transcription service. Content analysis was conducted on the transcriptions using NVIVO 11 Qualitative Analytical Software. Content analysis included thematic coding to potential health needs categories, identification of special populations experiencing health issues, identification of resources, as well as additional coding in accordance with the interview question guide. Results were aggregated to inform the determination of prioritized significant health needs and are presented later in this report.

⁹ *Federal Register*, Vol. 79, No. 250, (Wednesday, December 31, 2014). Department of the Treasury, Internal Revenue Service, page 78963.

Methods of Secondary Data Collection and Processing

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

Secondary Data Collection

The conceptual model shown previously in Figure 5 was used to organize secondary data collection, which was particularly focused on identifying indicators that would illuminate those concepts organized under the health outcomes and health factor categories. A number of general principles guided the selection of secondary indicators to represent these concepts. First, only indicators associated with categories in the conceptual model were included in the analysis. Second, indicators that were available from a consistent source for both the California and Oregon portions of the study area were preferred. Third, indicators were only collected from data sources deemed reliable and reputable. Fourth, indicators available at a sub-county level (such as a ZIP code or smaller level) were preferred to indicators available at a county level if they could be obtained. Finally, indicators were only collected if they were possible to acquire at a reasonable cost.

Indicators for this report were collected from a variety of sources. Major sources from which indicators were obtained directly or from which indicators were derived include:

- Health outcomes and health factors indicators from the Robert Wood Johnson Foundation's County Health Rankings and Roadmaps
- Health outcomes indicators from the California Department of Public Health (CDPH), the California Office of Statewide Health Planning and Development (OSHPD), and the Oregon Health Authority (OHA)
- Health factors indicators from the US Census Bureau

Tables 3 lists the sets of health outcome indicators obtained or derived from these main sources.¹⁰ Tables 4 and 5 list sets of health factor indicators obtained or derived from these main sources. Table 6 lists additional health outcome and health factor indicators derived from other sources. Interested readers may find a more detailed description of these indicators, their sources, and associated processing steps in Appendix B.

Table 3: Health Outcomes – Length of Life and Quality of Life

Length of Life	Infant Mortality Rate	Essential Hypertension & Hypertensive Renal Disease
	Child Mortality	Female Mortality Rate
	Life Expectancy at Birth	Influenza and Pneumonia
	Age-Adjusted All-Cause Mortality	Intentional Self Harm (Suicide)
	Alzheimer's Disease	Male Mortality Rate
	Cerebrovascular Disease (Stroke)	Malignant Neoplasms (Cancer)
	Chronic Liver Disease and Cirrhosis	Premature Mortality (Years Potential Life

¹⁰ Due to space constraints not all indicators that were available for analysis will be mentioned in this report.

		Lost 75)
	Chronic Lower Respiratory Disease	Premature Age-Adjusted Mortality
	Diabetes Mellitus	Nephritis, Nephrotic Syndrome and Nephrosis (Kidney Disease)
	Diseases of the Heart	Unintentional Injuries (Accidents)
Quality of Life	Breast Cancer (H/ED)*	Unintentional Injury (H/ED)
	Colorectal Cancer (H/ED)	Mental Health (H/ED)
	Lung Cancer (H/ED)	Asthma (H/ED)
	Prostate Cancer (H/ED)	Chronic Obstructive Pulmonary Disease (COPD) (H/ED)
	Diabetes (H/ED)	Hip Fractures (H/ED)
	Heart Disease (H/ED)	Oral Cavity/Dental (H/ED)
	Hypertension (H/ED)	Osteoporosis (H/ED)
	Nephritis, Nephrotic Syndrome and Nephrosis (Kidney Disease) (H/ED)	Low Birth Weight
	Stroke (H/ED)	Total ED Discharge Rate
	HIV/AIDS (H/ED)	Total H Discharge Rate
	Tuberculosis (H/ED)	Poor or Fair Health
	Assault (H/ED)	Poor Physical Health Days
	Self-Inflicted Injury (H/ED)	Poor Mental Health Days

*H: hospital discharges; ED: emergency department discharges

Table 4: Health Factors – Health Behaviors, Clinical Care, and Physical Environment

Health Behavior	Adult Smoking	Food Deserts
	Excessive Drinking	Motor Vehicle Crash Deaths
	Mental Health, Substance Abuse (H/ED)	STIs (H/ED, other)
	Adult Obesity	Teen Birth Rate
Clinical Care	Health Professional Shortage Areas (Primary Care, Dental, Mental Health)	Uninsured Adults
	Population per Primary Care Physician	Uninsured Children
	Population per Mental Health Provider	Diabetic Monitoring
	Population per Dentist	Mammography Screening
	Preventable Hospital Stays	Health Care Costs
	Uninsured	Could Not See Doctor Due to Cost
	Public Insurance	
Physical Environment	Pollution Burden	Food Deserts
	Air Pollution - Particulate Matter	Modified Retail Food Environment Index (mRFEI)
	Drinking Water Violations	Average Population per Housing Unit
	Access to Recreational Facilities	Housing Vacancy
	Access to Parks	Percent Households with No Vehicle
	Limited Access to Healthy Foods	Driving Alone to Work
	Fast Food Restaurants	Commutes Greater than 1 hour

Table 5: Health Factors – Socio-Economic and Demographic

Percent Asian (Not Hispanic)	Percent 25 or Older Without a High School Diploma
Percent Black (Not Hispanic)	High School Graduation Rate
Percent Hispanic (Any Race)	Some College
Percent American Indian (Not Hispanic)	Percent Single Female-Headed Households
Percent Pacific Islander (Not Hispanic)	Children in Single-Parent Households
Percent White (Not Hispanic)	Inadequate Social Support
Percent Other Race or Two or More Races (Not Hispanic)	Percent Unemployed
Percent Minority (Hispanic or Non-White)	GINI Coefficient
Racial/Ethnic Diversity Index	Median income
Population 5 Years or Older Who Speak Limited English	Percent Families with Children in Poverty
Population by Age Group: 0-4, 5-14, 15-24, 25-34, 45-54, 55-64, 65-74, 75-84, and 85 and over	Children in Poverty
Population Below 18 Years	Percent Households 65 years or Older in Poverty
Population 65 Years and Older	Percent Single Female Headed Households in Poverty
Median Age	Percent with Public Assistance
Percent Non-Citizen	Percent with Income Less Than Federal Poverty Level
Percent Female	Children Eligible for Free Lunch
Percent Foreign-Born	High Housing Costs
Percent Male	Renters
Percent Civilian Noninstitutionalized Population with a Disability	Violent Crime
Total Population	Homicides
Percent Over 18 Who are Civilian Veterans	Rural Population

Table 6: Remaining health outcome and health factor indicators and their sources

Indicator	Data Source
Food Deserts	USDA
Modified Retail Food Environment Index (mRFEI)	US Census Bureau County Business Patterns
Health Professional Shortage Areas (Primary Care, Dental, Mental Health)	US Department of Health & Human Services Health Resources and Services Administration
Pollution Burden	California Office of Environmental Health Hazard Assessment CalEnviroScreen Version 2
Cancer Mortality, Breast Cancer Incidence, Colorectal Cancer Incidence, Lung Cancer Incidence,	National Cancer Institute State Cancer Profiles

Prostate Cancer Incidence	
Asthma (California)	California Breathing, California County Asthma Profiles
Asthma (Oregon)	Oregon Health Authority, Burden of Asthma in Oregon Report, 2013

Community Health Vulnerability Index (CHVI)

A subset of the demographic health factor indicators (shown in Table 3) was also used to create the Community Health Vulnerability Index (CHVI), a composite index used to help understand the distribution of health disparities within the HSA. Like the *Community Needs Index (CNI)*¹¹ on which it was based, the CHVI combines multiple socio-demographic and housing indicators to help identify those locations experiencing greater health disparities. The CHVI differs from the CNI in the manner in which its indicators are combined. Higher CHVI values indicate a greater concentration of groups as being more likely to experience disparities. Interested readers are referred to Appendix A for further details as to its construction.

Table 7: Indicators included in the CHVI

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

Report Processes

The analytical processes for this CHNA were designed with care to allow for a tight integration of both qualitative and quantitative data sources. This integration allowed the strength of each approach to buttress the weakness in the other. Secondary quantitative data are useful because they provide a broad and consistently defined view of conditions within the HSA. But their use is limited based on data availability; also, because they lack the context necessary to provide true understanding, and because their collection is planned ahead of time, they are less useful in identifying emerging trends. While primary qualitative data can sometimes be anecdotal and strongly influenced by the sources from which they are derived, when done well they excel in providing needed context, a better understanding of lived experiences, and an ability to detect new, unanticipated trends or concepts. The sections below describe how qualitative and quantitative data were integrated in two key CHNA processes – identifying geographic locations and subgroup populations experiencing disparities, and identifying and prioritizing significant health needs.

¹¹ Barsi, E. and Roth, R. (2005) The Community Needs Index. *Health Progress*, Vol. 86, No. 4, pp. 32-38.

Identifying Geographic Locations and Subgroup Populations Experiencing Disparities

A key element of the CHNA methodology is the identification of geographic areas and population sub-groups within the HSA that have the greatest concentration of poor health outcomes and are home to more medically underserved, low-income, and diverse populations at greater risk for poorer health. This is important to the overall CHNA methodology because, after assessing the HSA more broadly, they allow for a focus on those portions of the HSA likely experiencing the greatest health disparities. Geographic locations in the HSA were identified based on information from primary data sources (key informant interviews and focus groups) as well as maps of secondary data (primarily the Community Health Vulnerability Index).

Identifying Significant Health Needs

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

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

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

Prioritizing Significant Health Needs

Once significant health needs were identified through the process described above, they were prioritized based on an analysis of primary data. The percent of all primary data sources that referenced each health need and the average number of times a health need was referenced by all sources was measured, and the significant health needs were ranked based on a combination of these measures. The significant health need with the highest combined value was identified as having the highest priority, with the second highest value the second highest priority, and so on until the significant health need with the lowest combined values was assigned the lowest priority. (For a more detailed explanation of the process used to prioritize significant health needs see Appendix B).

Findings

Geographic Locations and Subgroup Populations Experiencing Disparities

The identification of geographic areas and population sub-groups with increased vulnerability to negative health outcomes revealed four main findings. Results of the Community Health Vulnerability Index (CHVI) for the SCH HSA are presented in Figure 6. Examination of the CHVI at the census tract level showed a portion of the Brookings/Harbor area with the highest score for the portion of the HSA in Curry County. Additionally, the Klamath area also showed a high index score.

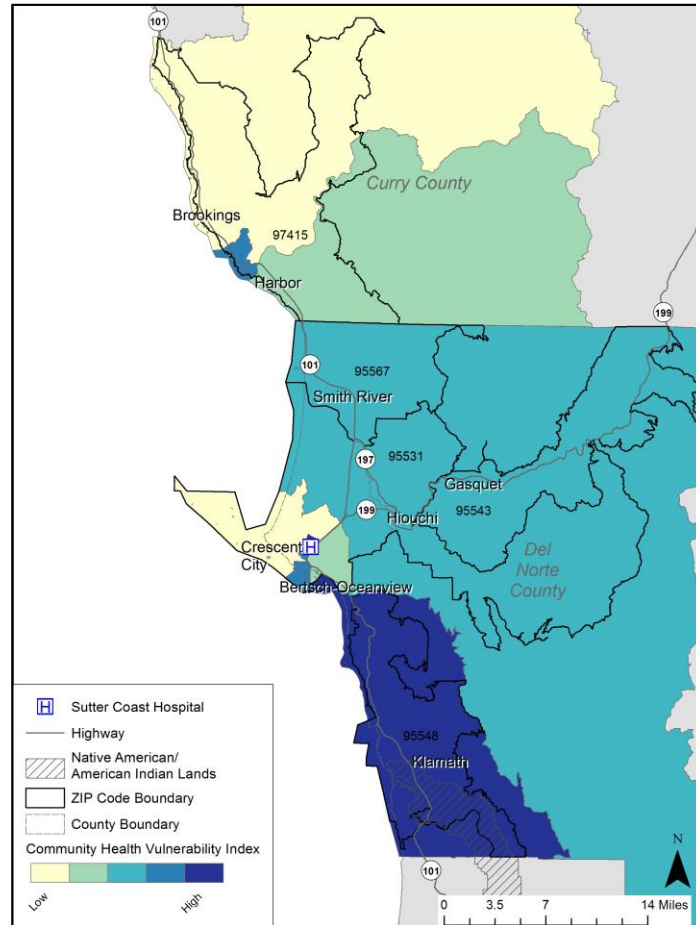


Figure 6: CHVI results for SCH HSA

When asked to identify specific populations or locations in the HSA that may be experiencing health disparities, key informants pointed to vulnerable groups such as low-income residents, the homeless, and residents of the tribal communities. Key informants also specifically mentioned the areas of Klamath, Crescent City, Gasquet, and Smith River as geographical areas experiencing disproportionate burden of negative health outcomes.

Prioritized, Significant Health Needs for the SCH HSA

Figure 7 displays the 11 significant health needs for the SCH in prioritized order. Prioritization was based on a combination the percent of all primary data sources that referenced the PHN as a

current, significant health need, shown by the blue portion of the bar, and the average number of times the PHN was referenced across all primary data sources, shown in the red portion of the bar.

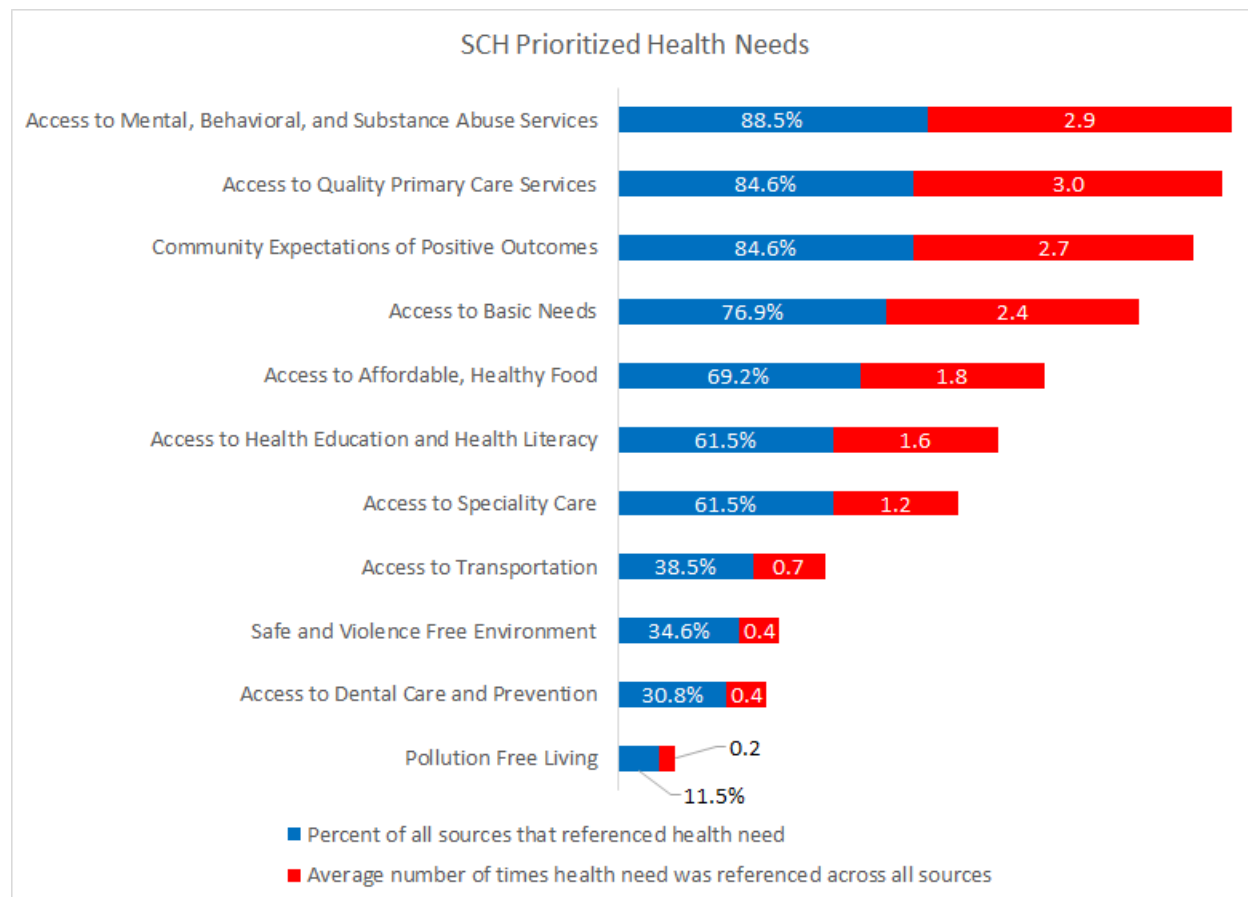


Figure 7: Prioritized, significant health needs for SCH

The identified significant health needs for the SCH HSA are listed below in prioritized order. Secondary data indicators that had undesirable rates in either Del Norte or Curry County were included and are listed in the table below each significant health need. Qualitative themes that emerged during analysis are also provided in the table.

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

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

Quantitative Indicators	Qualitative Themes
<ul style="list-style-type: none"> Percent of adults who report excessive drinking Percent of adults without social/emotional support Population per mental health 	<ul style="list-style-type: none"> Lack of mental health providers (Psychiatrists, psychologist, behavioral specialist) Only psychiatric treatment in the area is via telemedicine Lack of veteran mental health/behavioral health services Difficult to attract mental health providers to area to practice and

service provider	stay in the Sutter Coast HSA
<ul style="list-style-type: none"> Health Professional Shortage Area – Mental Health 	<ul style="list-style-type: none"> High rate of PTSD due to trauma History of trauma in community – community and personal level trauma Personal trauma related to poverty, unemployment, and domestic abuse High rates of suicide in adults and kids Substance abuse – including prescription drugs Waiting months for mental health care appointment Coast is a location for people wanting to “live off the grid” often struggle with substance abuse and mental illness Need “wrap around support services” to help positive mental health Generational poverty, substance use and abuse County services are limited, few county providers Need detox center/inpatient residential treatment center in HSA Need more early intervention work in the schools Drugs and alcohol related to domestic violence Feelings of hopelessness among community members Visible signs of homelessness in the community Traveling long distances for care Isolation of the area contributes to high drug abuse and mental illness Depression in community members with diabetes

2. Access to Quality Primary Care Health Services

The second highest priority significant health need for the SCH HSA was access to quality primary care health services. Primary care resources include community clinics, pediatricians, family practice physicians, internists, nurse practitioners, pharmacists, telephone advice nurses, and similar. Primary care services are typically the first point of contact when an individual seeks healthcare. These services are the front line in the prevention and treatment of common diseases and injuries in a community.

Quantitative Indicators	Qualitative Themes
<ul style="list-style-type: none"> Rate of preventable hospital stays Percent of people unable to see a doctor due to cost Percent of population under 65 without insurance Ratio of population to primary care providers Percent of females that receive mammogram screening Health Professional Shortage Area – Primary Care Percent of population with diabetes Rate of mortality due to heart disease Rate of mortality due to hypertension Rate of mortality due to kidney disease 	<ul style="list-style-type: none"> Transiency of providers effects coordination of care for patients Medical care system at capacity for population living in HSA Lack of local providers adds stress on ER for primary care Wait time for appointments/referrals is long Patients must travel out of area long distances to receive care Recruiting and maintaining medical professionals is difficult Providers come in and serve their time (paying off student loan debt) then leave Lack of bilingual providers in the HSA Lack of providers results in very few taking Medi-Cal (Medicaid) or Covered CA plans Area lacks providers with extensive expertise/specialty care Out of pocket cost for care is high Relationship between hospital and community needs mending

<ul style="list-style-type: none"> • Rate of mortality due to stroke • Rate of mortality due to cancer • Incidence rate of lung and bronchial cancer 	<ul style="list-style-type: none"> • More permanent health care providers with greater continuity with patients is needed • Major lack of OB providers in the area • Major lack of specialty providers in the area
---	---

3. Community Expectations of Positive Outcomes

The third highest priority significant health need for the SCH HSA was labeled “Community Expectations of Positive Outcomes.” This need was identified in the qualitative data and was so prevalent in the findings that it was added as a significant health need. The expectations and attitudinal beliefs of community members greatly shape how they work, play, access services, and feel about their community. Participants consistently spoke about the need for a collaborative-based community driven approach to develop a clearer vision for the Sutter Coast community. Providers and community members have high expectations for the area in terms of its ability to thrive economically and socially. This need describes many of the specifics that were expressed by participants that would help enhance the living conditions of the Sutter Coast HSA.

Qualitative Themes

<ul style="list-style-type: none"> • Loss of deep-rooted fishing and logging industries resulted in the need for a new identity a community • Feelings of hopelessness about the ability to change the economic and educational opportunities in the area • In need of clear partnership among care providers; leadership empowerment and increased community engagement in all sectors, especially with the local hospital system • Clarity on the “mission” of the local health care system to care for area residents • Expectation for area care providers to build and maintain positive relationships with patients • Many providers come to the area, but leave after a short period of time • “Why do they leave?” – Need for strategies/incentives to recruit and retain thriving businesses and care providers in the HSA • Need increased cross-Oregon-border collaboration for care services • Limited resources in the area contributes to working in silos among area providers
--

4. Access to Basic Needs, such as Housing and Employment

The fourth highest priority significant health need for the SCH HSA was access to basic needs such as housing and jobs. Access to affordable and clean housing, stable employment, quality education, and adequate food for health maintenance are vital for survival. Maslow’s *Hierarchy of Needs*¹² says that only when members of a society have their basic physiological and safety needs met can they become engaged members of society and self-actualize or live to their fullest potential, including their health.

Quantitative Indicators	Qualitative Themes
<ul style="list-style-type: none"> • Percent of people unable to see a doctor due to cost • Percent of adults without social/emotional support • Percent of population under 65 without insurance • Percent of children eligible for free and 	<ul style="list-style-type: none"> • High unemployment • Limited economic development and opportunity in HSA – Logging and fishing industries have diminished • Little job availability • Lacking in adequate economic opportunities and resources for residents • Low educational attainment

¹² McLeod, S. (2014). *Maslow’s Hierarchy of Needs*. Retrieved from: <http://www.simplypsychology.org/maslow.html>

<ul style="list-style-type: none"> reduced lunch Percent of children under 18 living in poverty Rate of deaths in children under 18 years of age Percent of children in single parent households Infant mortality rate Rate of pre-mature age adjusted mortality Percent of population unemployed Years of potential life lost Percent of population 25-44 years old with some college Percent of population that graduates high school in 4 years Median household income 	<ul style="list-style-type: none"> High poverty – generational poverty Homelessness – including young homeless populations Services for homeless are limited Housing is expensive – rental prices are high, limited affordable housing available, home prices are high Residents often stay in substandard housing for fear of ending up homeless High poverty often contributes to isolation
---	---

5. Access to Affordable, Healthy Food

The fifth highest priority significant health need for the SCH HSA was access to affordable, healthy foods. Eating a healthy diet is important for one's overall health and well-being. When access to healthy foods is challenging for community residents, many turn to unhealthy foods that are convenient, affordable, and readily available. Communities experiencing social vulnerability and poor health outcomes often are overloaded with fast food and other establishments where unhealthy food is sold.

Quantitative Indicators	Qualitative Themes
<ul style="list-style-type: none"> Percent of population with diabetes Rate of mortality due to heart disease Rate of mortality due to hypertension Rate of mortality due to kidney disease Rate of mortality due to stroke Rate of mortality due to cancer Incidence rate of lung and bronchial cancer Percent of population in poverty far from a grocery store Modified Retail Food Environment Index (mRFEI) 	<ul style="list-style-type: none"> Many residents are food insecure, families are hungry Access to healthy food is difficult – few grocery stores in HSA Community members need increased food literacy in what to eat and how to prepare healthy foods Healthy food is expensive and there are limited options Increased “food transportation” – transportation to get to areas of the HSA with healthy and affordable food options. City centers contain a large number of convenience food – food swamp Important to help folks maintain healthy traditional growing and eating food practices Improvement to school nutrition programs Increase growth of agriculture (organic/local) food sources – increase farmers markets Community nutrition education

6. Health Education and Health Literacy

The sixth highest priority significant health need for the SCH HSA was health education and health literacy. Knowledge is important for individual health and well-being, and health education interventions are powerful tools to improve community health. When community residents lack adequate information on how to prevent, manage, and control their health conditions, those conditions tend to worsen. Health education in infectious disease control (e.g. STI prevention, influenza shots) and intensive health promotion and education strategies in the management of chronic diseases (e.g. diabetes, hypertension, obesity, and heart disease) are important for community health improvement. Health literacy pertains to the extent that people have the knowledge and ability to obtain, process, and

understand health information and services needed to make appropriate health decisions.¹³ Health knowledge and education is important, but equally important is health literacy where people have the knowledge and ability to understand health information and are able to navigate the health care system.

Quantitative Indicators	Qualitative Themes
<ul style="list-style-type: none"> • Percent of population with diabetes • Rate of mortality due to heart disease • Rate of mortality due to hypertension • Rate of mortality due to kidney disease • Rate of mortality due to stroke • Percent of adults that smoke • Rate of motor vehicle crash deaths • Percent adults with no physical activity • Percent of adults who report excessive drinking • Percent of adults that are obese • Teen birth rate (births to 15-19 year olds) • Rate of mortality due to unintentional injury 	<ul style="list-style-type: none"> • Need education and literacy on how to seek and navigate health care services • Lack of primary care and specialty care in the area makes this a necessity • Increased need for preventive health education to help keep residents healthy – prevent disease and injury • Increased need for health education around food literacy • Need for tobacco prevention and cessation • More health education/ physical education in schools • Need health education on teen pregnancy prevention • Limited diabetes education in the HSA

7. Access to Specialty Care

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

Quantitative Indicators	Qualitative Themes
<ul style="list-style-type: none"> • Percent of population with diabetes • Rate of mortality due to heart disease • Rate of mortality due to hypertension • Rate of mortality due to kidney disease • Rate of mortality due to stroke • Rate of preventable hospital stays 	<ul style="list-style-type: none"> • Increased access to specialty care is important for HSA • Patients must travel far – often out of area for care • Aging population often delay care due to lack of specialists in area • Lacking in specialists – consistent mention of pediatricians, obstetricians, urologists, endocrinologists • No dialysis care in the area • Younger population in area are developing chronic diseases • Community members often move out of the area when they become ill to receive consistent care – primary and specialty care

8. Access to Transportation

The eighth highest priority significant health need for SCH HSA was access to transportation. Having access to transportation services to support individual mobility is a necessity of daily life.

¹³ Almader-Douglas, D. (2013). *Health Literacy*. National Network of Libraries of Medicine. Retrieved from <https://nnlm.gov/outreach/consumer/hlthlit.html>

Without transportation, individuals struggle to attain their basic needs, including those that promote and support a healthy life.

Qualitative Themes

- Rural area makes transportation difficult
- Distance from one service to the other is hard – creates financial and time barriers to being healthy
- Some residents buy transportation services with their medical dollars
- Poor weather conditions make transportation out of the area for care exceptionally difficult
- Limited public transportation infrastructure
- Few streets have sidewalks for navigating through the area
- Poverty prevents many residents from having reliable transportation
- Transportation for specialty care is often out of the HSA and one way; patients have trouble getting back home after care is complete

9. Safe and Violence-Free Environment

The ninth highest priority significant health need for the SCH HSA was a safe and violence-free environment. Feeling safe in one's home and community are fundamental to overall health. Next to having basic needs met (food, shelter, clothing) is physical safety. Feeling unsafe affects the way people act and react to everyday life occurrences.

Quantitative Indicators

Qualitative Themes

- | | |
|---|---|
| <ul style="list-style-type: none"> • Rate of motor vehicle crash deaths • Percent adults with no physical activity • Rate of homicides • Rate of people with access to a recreational facility • Percent of population with access to a park | <ul style="list-style-type: none"> • High rates of domestic abuse in HSA • Isolation resulting in violence • High rate of referrals to Children Services in HSA • Lack of mental health care in the area exacerbates domestic and community violence episodes |
|---|---|

10. Access to Dental Care and Prevention

The tenth priority significant health need for SCH HSA was access to dental care and prevention. Oral health is important for overall quality of life. When individuals have dental pain it is difficult to eat, concentrate and fully engage in life. Poor oral health impacts the health of the entire body, especially the heart, digestive, and endocrine systems.

Quantitative Indicators

Qualitative Themes

- | | |
|---|---|
| <ul style="list-style-type: none"> • Ratio of population per dentist • Health Professional Shortage Area – Dental | <ul style="list-style-type: none"> • Lack of dental providers in the HSA • Recruiting and maintaining dental health professionals in the area is difficult • No dentists take Medicaid in Brookings • Must travel outside of HSA to receive adequate dental care • Dental care and prevention for children is inadequate to meet needs of population • Patients with Medi-cal (Medicaid) receive inadequate care resulting in the pulling of teeth rather than restorative care |
|---|---|

11. Pollution-Free Living Environment

The eleventh priority significant health need for SCH HSA was a pollution-free living environment. Living in a pollution-free environment is essential for health. Individual health is determined by a number of factors, and some models show that one's living environment, including the

physical (natural and man- one's made) and socio-cultural environment, has more impact on individual health than lifestyle, heredity, or access to medical services.¹⁴

Quantitative Indicators	Qualitative Themes
<ul style="list-style-type: none"> • Percent of adults that smoke • Rate of mortality due to cancer • Incidence rate of lung and bronchial cancer • Air quality – average daily particulate matter • Asthma – ED visits 	<ul style="list-style-type: none"> • High moisture in the area resulting in respiratory issues • Mold in housing units and community dwellings

Health Outcomes – Length and Quality of Life

Examination of health outcomes for the assessment included measures of morbidity and mortality. The conditions examined included the major categories of chronic disease, mental health, unintentional injury, cancer, respiratory health, and dental health. Data examined primarily included CDPH mortality data by ZIP code, OSHPD ED visits and hospitalizations by condition by ZIP code, and county level data from the Robert Wood Johnson Foundation's County Health Rankings and Roadmaps website.

Overall Health Status (Age-adjusted Mortality, Life Expectancy at Birth, and Years of Potential Life Lost)

Table 8 examines two common overall health status indicators: Age-adjusted all-cause mortality and life expectancy at birth in the SCH HSA.

Table 8: Overall health status indicators – Age-adjusted all-cause mortality and life expectancy at birth compared to county, state, and national benchmarks

Overall Health Status Indicators	Geographic Area	Age Adjusted All-Cause Mortality (per 10,000 pop)	Life Expectancy at Birth (Years)
	95531	73.2	77.5
	95543	39.8	N/A
	95548	66.7	78.7
	95567	59.7	77.3
	97415	N/A	N/A
	<i>Del Norte County</i>	78.9	76.0
	<i>Curry County</i>	N/A	77.6 ¹⁵
	<i>CA State</i>	64.6	80.5
	<i>OR State</i>	N/A	79.5 ¹⁶
	<i>National 2013</i>	N/A	78.8 ¹⁷

Note: in the table a 0 indicates a numerical value; N/A represents that the data is either not available or the count for that indicator and ZIP code fell below acceptable masking levels.

¹⁴ See Blum, H. L. (1983). *Planning for Health*. New York: Human Sciences Press

¹⁵ Average of male and female life expectancy for 2013 taken from http://www.healthdata.org/sites/default/files/files/county_profiles/US/County_Report_Curry_County_Oregon.pdf

¹⁶ Retrieved from: <http://www.worldlifeexpectancy.com/usa/oregon-life-expectancy>

¹⁷ Centers for Disease Control and Prevention. (2015). *Deaths: Final data for 2013*. Retrieved from: http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_02.pdf

Various quantitative indicators help to provide information about what it feels like to live in a community on an everyday basis. Though specific measures of mortality tell us how community members suffered related to specific conditions, overall health status indicators communicate length of life, quality of life, socioeconomic factors and the intersection of the environment and personal behaviors. Data were available only for the ZIP code areas that make up the California portion of the HSA. NOTE: In this Table 8, and all that follow, any indicator that exceeded any benchmark is highlighted.

Years of Potential Life Lost (Before age 75)

Years of Potential Life Lost (YPLL) before the age of 75 is an indicator that examines premature mortality. YPLL rates of mortality measure the average years a person would have lived to age 75 if they had not died prematurely. Given that age is positively associated ill health, examining YPLL helps to understand increased vulnerability of a community to illness.

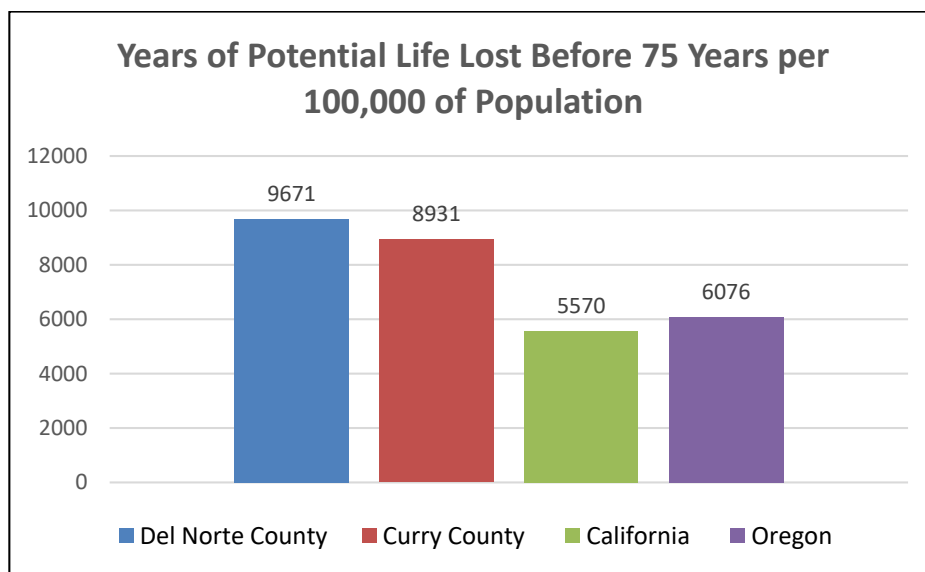


Figure 8: Years of Potential Life Lost (< 75 years of age) for Del Norte and Curry Counties

As Figure 8 shows, both Del Norte County and Curry County have YPLL rates that exceeded their corresponding state benchmarks, with Del Norte County having the highest rate of the two at 9,671 YPLL.

Premature Age-Adjusted Mortality – Number of Deaths for People Under 75

Premature age adjusted mortality examines the death rate in residents under the age of 75 of a geographic area, age adjusted to a standard population. Premature age adjusted mortality differs from YPLL (under 75 years) because it includes the number of people in the population that die before 75 versus the total number of years left (up to 75 years). However, both are measures of premature mortality. Like YPLL, both Del Norte and Curry Counties had premature age-adjusted mortality rates that exceeded the corresponding state benchmark, with Del Norte County again having the highest rate at 455.4 per 100,000 population.

Table 9: Premature age-adjusted mortality (under 75) per 100,000 population by county compared to state benchmarks

Geographic Area	Premature Age-Adjusted Mortality
Del Norte County	455.4
Curry County	419.7
CA State	287.4
OR State	317.2

Child and Infant Mortality

Child mortality (deaths under 18) and infant mortality (deaths under one year) are presented in Figure 9. Both of these mortality measures speak to the social and health conditions of a community as children and infants are among the most vulnerable to ill health. It is often said that you can judge the health of a community based on the health of the younger community members. Only data for Del Norte County were examined as Curry County data were not available for these indicators. The data for both indicators are presented in Figure 9 and compared to the neighboring counties of Humboldt and Siskiyou.

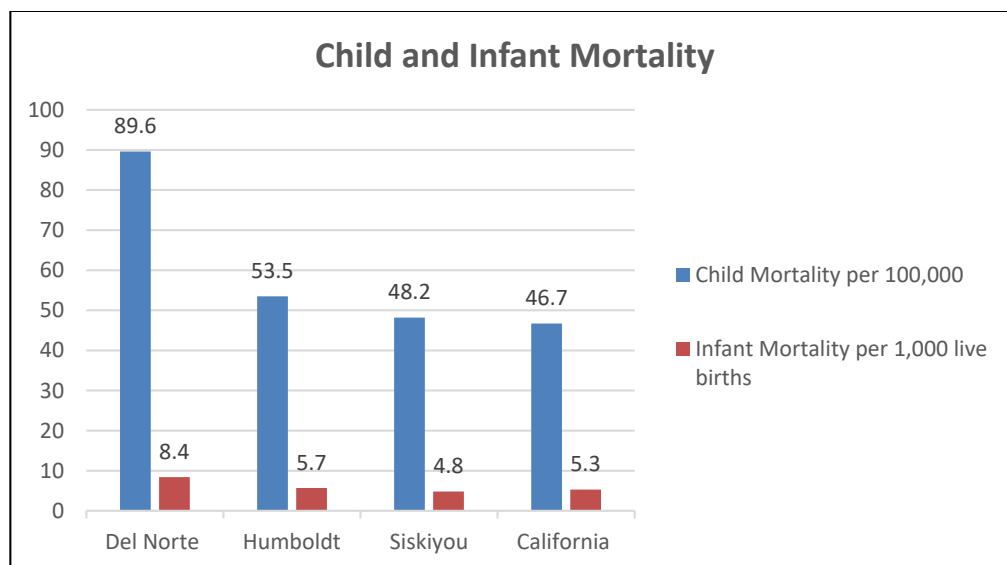


Figure 9: Child Mortality (per 100,000) and Infant Mortality (per 1,000 live births)

Child mortality rates (per 100,000) were high in Del Norte County in comparison to the state benchmark. Del Norte County had the highest child mortality rate in comparison to the two neighboring counties of Humboldt and Siskiyou, exceeding the California benchmark by almost twice the rate. In addition, the Del Norte County infant mortality rate was also clearly above the neighboring county rates, California state benchmark, and the Healthy People 2020 benchmark¹⁸ (6.0 per 1,000 live births).

¹⁸ Office of Disease Prevention and Health Promotion. (2014). *Maternal, Infant and Child Health*. Retrieved from: <https://www.healthypeople.gov/2020/leading-health-indicators/2020-lhi-topics/Maternal-Infant-and-Child-Health/data>

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

Chronic diseases, specifically diabetes, heart disease, stroke, hypertension, and kidney diseases are among the top leading causes of death in the nation.¹⁹ These conditions were commonly mentioned as health conditions that SCH residents struggle with. An evaluation of quantitative data also revealed clear geographical disparities of these outcomes within the service area. Data for these conditions in the SCH HSA follows.

Diabetes

Table 10 displays rates of mortality, ED visits, and hospitalizations due to diabetes for the SCH HSA. Data for the Brookings ZIP code and Oregon State were not available for these three indicators.

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

Diabetes	Geographical Area	Mortality	ED Visits	Hospitalizations
	95531	2.1	416.7	189.0
	95543	N/A	295.3	203.4
	95548	N/A	454.5	198.2
	95567	2.2	344.9	198.3
	97415	N/A	N/A	N/A
	<i>Del Norte County</i>	2.1	412.5	192.5
	<i>Curry County²⁰</i>	4.03	109.4	76.5
	<i>CA State</i>	2.1	210.9	194.0
	<i>OR State</i>	N/A	N/A	N/A
	<i>Healthy People 2020 Goal</i>	6.6	N/A	N/A

Note: a 0 indicates a numerical value; N/A represents that the data is either not available or the count for that indicator and ZIP code fell below acceptable masking levels.

Mortality rates due to diabetes for the HSA were only available for two of the five ZIP codes, and for both Del Norte and Curry Counties. ZIP code 95567 (Smith River) had a rate above the California state benchmark. The Curry County rate was considerably higher than the Del Norte County rate but lower than the Healthy People 2020 benchmark.

Data on diabetes prevalence are presented in Figure 10 for Del Norte and Curry Counties. Findings indicate that Curry County had the highest percent of diabetes prevalence at 11%, while Del Norte County had a percent of prevalence in line with the state benchmarks. Qualitative findings pointed to a high rate of diabetes in the area, especially among Hispanic and Native American populations.

¹⁹ Centers for Disease Control and Prevention. (2015). *Leading causes of death*. Retrieved from: <http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>

²⁰ ED and Hospitalization rates for Curry County are based on visits of Curry County residents to California hospitals only. This means that visits to Oregon hospitals are not included in these rates. While the rates are included here in the hopes that they provide some utility, caution should be exercised in comparing the Oregon and California portions of the study area.

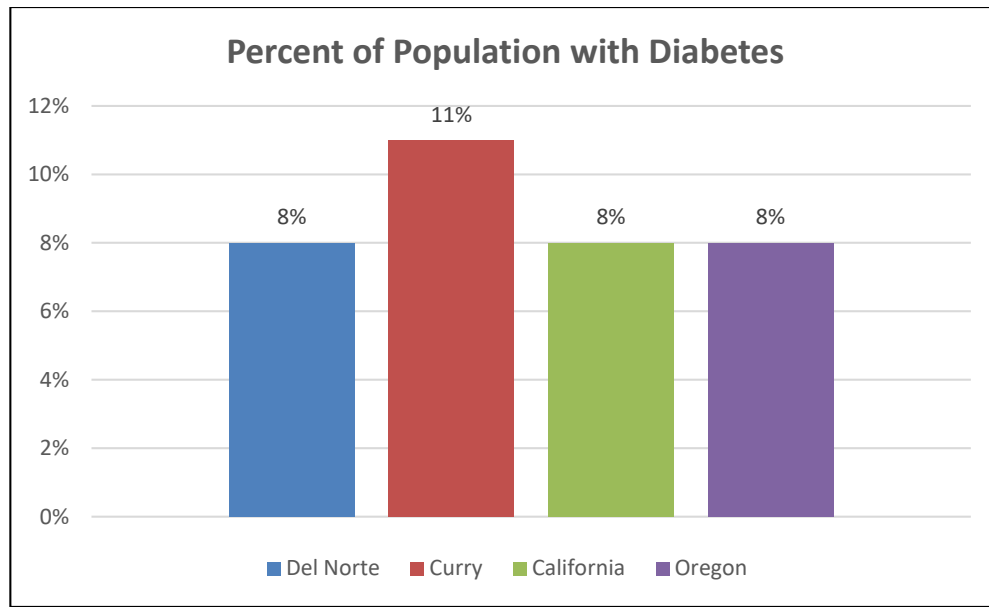


Figure 10: Diabetes prevalence – Percent of population with diabetes

Heart Disease

Heart disease is the leading cause of death in the nation for individuals under the age of 85; it includes a number of different types of heart-related conditions, with coronary heart disease the most common and a major cause of heart attacks. More than 600,000 people die of heart disease each year.²¹ Key informants and community members mentioned heart disease and high cholesterol as common conditions for area residents. Table 11 examines rates for mortality, ED visits, and hospitalizations due to heart disease for all four ZIP codes in the California portion of the HSA. Data for the Brookings ZIP code were not available for these three indicators and the data for Oregon State were not available for ED visits and hospitalizations.

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

Heart Disease	Geographic Area	Mortality	ED Visits	Hospitalizations
	95531	17.5	135.6	129.9
	95543	18.2	106.8	168.2
	95548	18.4	156.4	129.4
	95567	23.2	153.6	150.0
	97415	N/A	N/A	N/A
	<i>Del Norte County</i>	<i>20.0</i>	<i>139.4</i>	<i>135.1</i>
	<i>Curry County</i>	<i>36.3</i>	<i>69.1</i>	<i>64.8</i>
	<i>CA State</i>	<i>15.8</i>	<i>70.8</i>	<i>143.0</i>
	<i>OR State</i>	<i>15.9</i>	<i>N/A</i>	<i>N/A</i>
	<i>Healthy People 2020 Target</i>	<i>10.1</i>	<i>N/A</i>	<i>N/A</i>

Note: a 0 indicates a numerical value; N/A represents that the data is either not available or the count for that indicator and ZIP code fell below acceptable masking levels.

²¹ Centers for Disease Control and Prevention. (2015). *Heart Disease Facts*. Retrieved from: <http://www.cdc.gov/heartdisease/facts.htm>

Mortality due to heart disease was elevated in all the California ZIP codes in the SCH HSA, with the highest rate occurring in ZIP code 95567 (Smith River). The Curry County rate for mortality due to heart disease was more than twice the Oregon state benchmark and three times higher than the Healthy People 2020 target.

ED visits due to heart disease were high in all of the four ZIP codes in the SCH HSA with the highest rates in ZIP codes 95548 (Klamath) and 95567 (Smith River). Both these ZIP codes had ED visits rates that were two times the state benchmark. Hospitalizations due to heart disease was high in ZIP codes 95543 (Gasquet) and 95567 (Smith River).

Stroke, Hypertension, and Kidney Disease

Stroke was the fifth leading cause of death at the national level in 2013.²² Approximately 800,000 people have a stroke each year, with the most common type those that restrict blood flow to the brain.²³ Tobacco smoking and hypertension drastically increase risk for stroke. Hypertension is common, occurring in approximately one out of every three adults.²⁴ Both stroke and hypertension are discussed together here. Hypertension also increases risk for kidney disease, along with heart disease and diabetes. Tables 12, 13, and 14 examine mortality, ED visits, and hospitalizations related to stroke, hypertension, and kidney disease. Data for the Brookings ZIP code were not available for these three indicators and the data for Oregon State were not available for ED visits and hospitalizations.

Table 12: Mortality, ED visit, and hospitalization rates for stroke compared to county, state, and Healthy People 2020 benchmarks (rates per 10,000 population)

	Geographic Area	Mortality	ED Visits	Hospitalizations
Stroke	95531	4.4	24.5	55.0
	95543	4.6	N/A	59.7
	95548	3.8	28.9	57.6
	95567	0	29.9	45.0
	97415	N/A	N/A	N/A
	<i>Del Norte County</i>	5.3	27.6	57.1
	<i>Curry County</i>	6.3	15.5	26.6
	<i>CA State</i>	3.6	20.3	56.1
	<i>OR State</i>	4.6	N/A	N/A
	<i>Healthy People 2020 Target</i>	3.4	N/A	N/A

Note: a 0 indicates a numerical value; N/A represents that the data is either not available or the count for that indicator and ZIP code fell below acceptable masking levels.

ZIP codes 95531 (Crescent City), 95543 (Gasquet), and 95548 (Klamath) had rates that exceeded the state and Healthy People 2020 benchmarks for mortality due to stroke. Both the Del Norte and Curry County rates exceeded the corresponding state benchmarks and the Healthy People 2020 benchmarks, with Curry County having the highest rate at 6.3 deaths due to stroke per 10,000

²² Centers for Disease Control and Prevention. (2015). *Leading Causes of Death*. Retrieved from: <http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>

²³ Centers for Disease Control and Prevention. (2015). *Stroke Facts*. Retrieved from: <http://www.cdc.gov/stroke/facts.htm>

²⁴ Centers for Disease Control and Prevention. (2015). *Blood Pressure Facts*. Retrieved from: <http://www.cdc.gov/bloodpressure/facts.htm>

population. ED visits and hospitalizations due to stroke were high in the HSA ZIP codes. The ZIP code area of 95567 (Smith River) had the highest rate of ED visits; above both the Del Norte and California state benchmarks. The highest rate of hospitalizations due to stroke was seen in ZIP code 95543 (Gasquet). Morality, ED visits and hospitalizations due to hypertension in the SCH HSA follow in Table 13. Data for the Brookings ZIP code and Oregon State were not available for these indicators.

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

Hypertension	Geographic Area	ED Visits	Hospitalizations
	95531	710.7	335.5
	95543	437.9	255.9
	95548	705.6	373.7
	95567	684.9	328.6
	97415	N/A	N/A
	<i>Del Norte County</i>	703.6	336.8
	<i>Curry County</i>	236.2	159.6
	<i>CA State</i>	412.6	387.2
	<i>OR State</i>	N/A	N/A

Note: a 0 indicates a numerical value; N/A represents that the data is either not available or the count for that indicator and ZIP code fell below acceptable masking levels.

ED visits due to hypertension were high in all four ZIP codes in the California portion of the HSA, with the two highest rates seen in ZIP codes 95531 (Crescent City) and 95548 (Klamath). The Del Norte County rate was also drastically higher than the California state benchmark, with a rate more than 1.7 times the state. The rate of hospitalizations due to hypertension across the HSA was below the California state benchmark. However, all four ZIP code rates and the Del Norte County rates were clearly higher than the Curry County rate.

Table 14: Rate of mortality due to hypertension (per 100,000) for Curry and Del Norte Counties compared to the state benchmarks

Geographic Area	Hypertension Mortality (per 100,000)
Curry County	26.9
Del Norte County	N/A
<i>CA State</i>	12.1
<i>OR State</i>	13.0

Table 14 shows mortality due to hypertension for the SCH HSA. Mortality due to hypertension was available only for Curry County. As table 14 shows the rate for Curry County was drastically higher than the Oregon state rate at more than twice the amount. Table 15 shows mortality, ED visits and hospitalizations due to kidney disease for the HSA. Data for the Brookings ZIP code were not available for these three indicators.

Table 15: Mortality, ED visits and hospitalization rates for kidney diseases compared to county and state benchmarks (rates per 10,000 population)

Kidney Disease	Geographic Area	Mortality: Nephritis	ED Visits*	Hospitalizations*
	95531	0.8	53.4	173.3
	95543	0	N/A	187.3
	95548	0	49.5	198.4
	95567	0.9	52.6	158.6
	97415	N/A	N/A	N/A
	<i>Del Norte County</i>	1.1	54.4	177.1
	<i>Curry County</i>	2.2	22.7	81.0
	<i>CA State</i>	0.7	57.6	161.5
	<i>OR State</i>	0.8	N/A	N/A

* OSHPD data includes data for conditions nephritis, nephrotic syndrome, and nephrosis

Note: a 0 indicates a numerical value; N/A represents that the data is either not available or the count for that indicator and ZIP code fell below acceptable masking levels.

Mortality due to kidney disease (nephritis) was elevated above the California state benchmark in ZIP codes 95531 (Crescent City) and 95567 (Klamath). There were no cases of mortality due to kidney disease in the remaining California ZIP codes in the HSA. The rate for mortality due to kidney disease in Curry County was more than twice the Oregon state benchmark. Rates of ED visits due to kidney disease across the HSA fell below the California benchmark, however the rate in Del Norte County was double that of the Curry rate. Hospitalizations due to kidney disease were elevated across the HSA in addition to Del Norte County as a whole. The highest ZIP code rate was in ZIP code 95548 (Klamath). The Del Norte County rate was more than twice the Curry County rate for this indicator.

Mental Health and Self-Inflicted Injury

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

Mental Health

Table 16 displays the rates for the SCH HSA for all mental health-related ED visits and hospitalizations. Data for the Brookings ZIP code and Oregon State were not available for these three indicators.

In the table, all ZIP codes in the California portion of the SCH HSA had elevated rates of ED visits due to mental health, with the highest rate in ZIP code 95531 (Crescent City). The rate in ZIP code 95531 and the Del Norte County rate were approximately twice the rate of the CA state benchmark. Additionally, the Del Norte County rate was more than four times higher than the Curry County rate for ED visits due to mental health issues, and this pattern was also true for hospitalizations. All ZIP code

rates and county rates fell below the California state benchmark for hospitalizations due to mental health issues.

Table 16: ED visit and hospitalization rates due to mental health issues compared to county and state benchmarks (rates per 10,000 population)

Mental Health (Overall)	Geographic Area	ED Visits	Hospitalizations
	95531	366.9	147.9
	95543	220.1	128.1
	95548	302.4	153.7
	95567	261.0	119.9
	97415	N/A	N/A
	<i>Del Norte County</i>	353.4	148.8
	<i>Curry County</i>	80.1	59.4
	<i>CA State</i>	153.6	188.6
	<i>OR State</i>	N/A	N/A

Note: a 0 indicates a numerical value; N/A represents that the data is either not available or the count for that indicator and ZIP code fell below acceptable masking levels.

Key informants and community members consistently spoke about mental health illness as a significant problem in the SCH HSA. Specifically mentioned was a significant presence of post-traumatic stress disorder (PTSD), traumatic experiences, and substance abuse related mental health issues. PTSD was mentioned as being a result of having a high veteran population in the area. Traumatic life events seemed to stem from traumatic experiences by community members both in childhood and as adults. As one community member said:

There's a lot of trauma in the community whether its kids who have been through abuse or in the foster care system, or it its kids whose families have been through 100 years of genocide and boarding school, displacement, poverty, lack of employment; and those things have a lot of ramifications (FG_6).

Another key informant stated:

I know that there's a lot of struggling single parents and a lot of kids that are homeless, and it seems...I was talking to someone who grew up here, and I never heard someone describe Del Norte County this way, but it really made a lot of sense. She said we are a "trauma community" (KI_15).

Suicide and Self-Inflicted Injury

Table 17 displays mortality rates due to suicide, and ED visits and hospitalizations due to self-inflicted injury for the SCH HSA.

Table 17: Mortality rates due to suicide and ED visits and hospitalization rates due to self-inflicted injury compared to county, state, and Healthy People 2020 benchmarks (rates per 10,000 population)

Suicide/Self-Inflicted Injury	Geographic Area	Mortality	ED Visits	Hospitalizations
	95531	1.1	17.6	5.3
	95543	0	N/A	N/A
	95548	1.3	N/A	N/A
	95567	1.3	N/A	N/A
	97415	N/A	N/A	N/A
	<i>Del Norte County</i>	1.8	18.3	6.1
	<i>Curry County</i>	4.5	1.0	0
	<i>CA State</i>	1.0	8.2	4.4
	<i>OR State</i>	N/A	N/A	N/A
	<i>Healthy People 2020</i>	1.0	N/A	N/A

Note: a 0 indicates a numerical value; N/A represents that the data is either not available or the count for that indicator and ZIP code fell below acceptable masking levels.

Mortality due to suicide was high in ZIP codes 95548 (Klamath) and 95567 (Smith River), both above the California state and Healthy People 2020 benchmarks. The rate of ED visits due to self-inflicted injury was drastically elevated in ZIP code 95531 (Crescent City) and for Del Norte County overall. Both had rates of ED visits that were more than twice the state benchmark. This pattern continued for hospitalizations due to self-inflicted injuries.

Many key informants and community members mentioned the high rate of suicide in the Del Norte County area and specifically mentioned the tribal community as a community experiencing a disproportionate amount. As one key informant stated: *“Even young people with strong family support who have purpose in life who seem to have it all together are killing themselves, and right now I know the tribe is doing some suicide prevention work (KI_7).”* Multiple key informants talked about the suicide rate in the local area and the need for increased prevention work. Participants also stressed the lack of care for those struggling with self-harm and suicidal thoughts. A community member said: *“If you have a friend who is suicidal in Curry County, where do you send them? There is nowhere to send them” (FG_7).*

Unintentional Injury

Unintentional injury is the fourth leading cause of death in the nation and the leading cause of death for children and teens.^{25,26} National data show that most deaths related to unintentional injuries for young people result from motor vehicle accidents, followed by drowning, fire, falls, and poisoning. ED visits and hospitalizations related to unintentional injuries are included in this section of the report. In the health factors section, data on fatal traffic accidents, major crimes, and assault are detailed.

Table 18 examines mortality, ED visits, and hospitalizations related to unintentional injuries. Data for the Brookings ZIP code were not available for these three indicators and the data for Oregon State were not available for ED visits and hospitalizations. Mortality due to unintentional injuries was high in ZIP codes 95531 (Crescent City) and 95548 (Klamath), and in both counties. The rate in Del Norte

²⁵US National Library of Medicine: MedlinePlus. (2016). *Death among children and adults*. Retrieved from: <https://www.nlm.nih.gov/medlineplus/ency/article/001915.htm>

²⁶Centers for Disease Control and Prevention. (2015). *Leading Causes of Death*. Retrieved from: <http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>

County was the highest in the HSA at more than twice the California state rate and clearly higher than the Healthy People 2020 benchmark. ED visits due to unintentional injuries were elevated in all California HSA ZIP codes with the highest rate in ZIP code 95531 (Crescent City) at more than twice the county rate. Hospitalizations were only elevated in ZIP code 95548 (Klamath). Again, the county rates for mortality, ED visits, and hospitalizations in Del Norte County were drastically higher in comparison to the Curry County rates.

Table 18: Mortality, ED visit, and hospitalization rates due to unintentional injury compared to county, state and Healthy People 2020 benchmarks (rates per 10,000 population)

Unintentional Injury	Geographic Area	Mortality	ED Visits	Hospitalizations
	95531	5.0	1336.2	134.1
	95543	N/A	896.9	111.4
	95548	4.5	1437.9	207.8
	95567	N/A	1132.1	124.4
	97415	N/A	N/A	N/A
	<i>Del Norte County</i>	6.3	1319.7	139.6
	<i>Curry County</i>	4.9	240.0	48.2
	<i>CA State</i>	2.9	671.3	155.5
	<i>OR State</i>	4.3	N/A	N/A
	<i>Healthy People 2020</i>	3.4	N/A	N/A

Note: a 0 indicates a numerical value; N/A represents that the data is either not available or the count for that indicator and ZIP code fell below acceptable masking levels.

Cancers

Cancer is one of the leading causes of death in the nation, with more than 8% of the population receiving a cancer diagnosis at least once in their lifetime.²⁷ In an attempt to gain a better understanding of how the SCH HSA is affected by cancer, the assessment included the examination of cancer mortality at the county level, as well as cancer incidence of specific causes of cancer. Incidence rates at the county level included lung cancer, colorectal cancer, prostate cancer, and female breast cancer. These specific cancers were chosen for this assessment because they are among the leading causes of new cases and/or of deaths of cancer among Americans today.

All-Cause Cancer Mortality

An all-cause cancer mortality rate shows the overall effect of cancer as an illness.²⁸ Data for mortality due to all causes of cancer is presented in Figure 11 for Curry and Del Norte Counties with the California and Oregon state benchmarks. Rates for all-cause cancer mortality were higher for both Del Norte County and Curry County in comparison to their respective state rates, with Curry County showing the highest rate.

²⁷ Centers for Disease Control and Prevention. (2015). *Cancer*. Retrieved from: <http://www.cdc.gov/nchs/fastats/cancer.htm>

²⁸ American Cancer Society. (2014). *Cancer Facts and Figures 2014*. Retrieved from: <http://www.cancer.org/acs/groups/content/@research/documents/webcontent/acspc-042151.pdf>

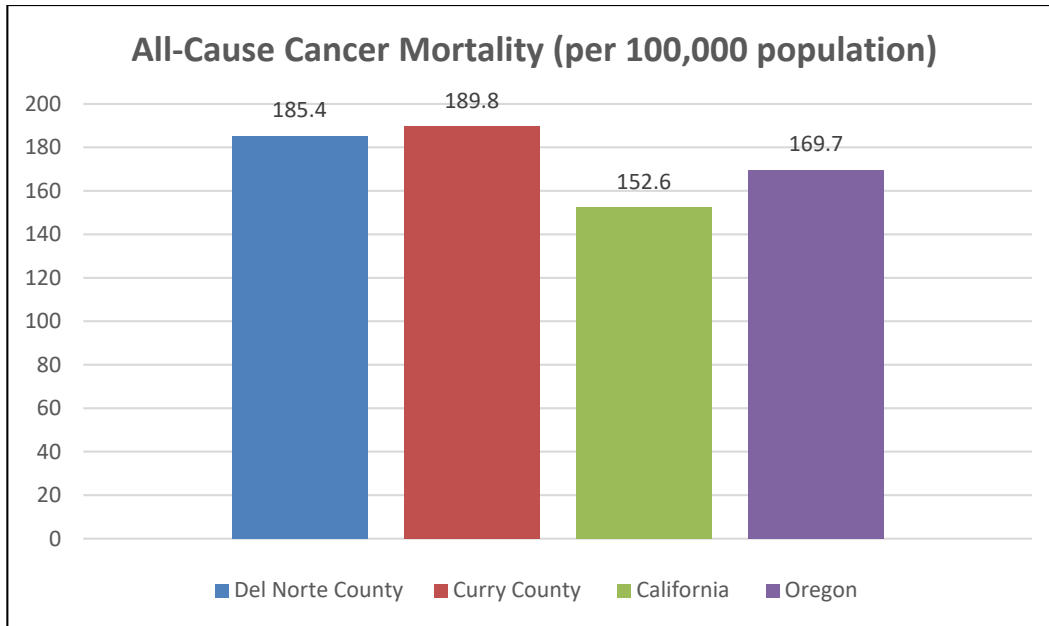


Figure 11: All-cause cancer mortality in the SCH HSA

Cancer – Incidence by Cause

A lack of access to primary health care greatly affects a community's risk of late diagnosis of cancer, especially those cancers in which early diagnosis and prevention are vital to reducing increased related morbidity and mortality. Figure 12 shows cancer incidence for Del Norte and Curry Counties for breast cancer, colon/rectum cancer, lung and bronchus cancer, and prostate cancer. The California and Oregon state rates are also presented for benchmark comparisons.

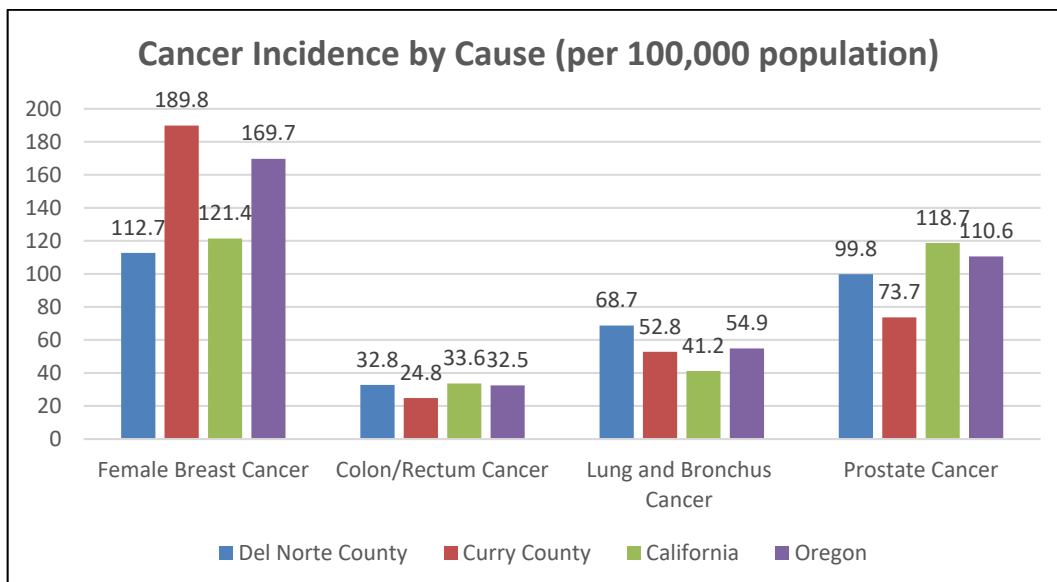


Figure 12: Cancer incidence by cause for the SCH HSA

Breast cancer incidence was highest in Curry County in comparison to Del Norte County and the corresponding state benchmarks. The opposite was true for colon/rectum cancer, where Del Norte County had the higher rate between the two counties. Del Norte also had the highest lung and bronchus

cancer incidence rates, clearly above both the Curry County rate and state benchmark. The incidence rate for prostate cancer was lower in both counties in comparison to their state benchmarks.

Respiratory Health – Chronic Obstructive Pulmonary Disease and Asthma

Chronic Obstructive Pulmonary Disease (COPD)

COPD is a progressive lung disease that makes it difficult to breathe and refers to the two main conditions of emphysema and chronic bronchitis.²⁹ Tobacco smoking is the biggest risk factor for COPD. In the US approximately 6.8 million people have COPD. In an effort to understand the impact of respiratory illness in the SCH HSA, mortality rates for Chronic Lower Respiratory Disease (CLRD) are presented in Table 19 with rates of ED visits and hospitalizations related to COPD. Rates of ED visits and hospitalizations due specifically to asthma are examined in Table 20. Data for the Brookings ZIP code were not available for these three indicators and the data for Oregon State were not available for ED visits and hospitalizations.

Table 19: Mortality due to CLRD, ED visit and hospitalization rates due to COPD, compared to county, state and Healthy People 2020 benchmarks (rates per 10,000 population)

	Geographic Area	Mortality CLRD	ED Visits COPD	Hospitalizations COPD
Chronic Lower Respiratory Disease (CLRD) & Chronic Obstructive Pulmonary Disease (COPD)	95531	6.0	279.9	144.2
	95543	0	259.4	120.8
	95548	3.8	370.7	195.5
	95567	3.8	213.5	142.2
	97415	N/A	N/A	N/A
	<i>Del Norte County</i>	7.2	281.9	149.0
	<i>Curry County</i>	6.7	58.2	56.7
	<i>CA State</i>	3.5	74.6	89.1
	<i>OR State</i>	N/A	N/A	N/A
	<i>Healthy People 2020</i>	N/A	56.8	50.1

Note: a 0 indicates a numerical value; N/A represents that the data is either not available or the count for that indicator and ZIP code fell below acceptable masking levels.

ZIP code 95531 (Crescent City) had a mortality rate due to CLRD that drastically exceeded the state rate. The rate in Del Norte County was also higher than the Curry County rate, and almost twice the state benchmark. The rate of ED visits due to COPD was greatly elevated in all California ZIP codes in the SCH HSA, at more than three times the state benchmark. ZIP code 95548 (Klamath) had the highest rate in the HSA. The Del Norte County rate for ED visits due to COPD was more than four times higher than the Curry County rate and Healthy People 2020 benchmark. This pattern was also true for hospitalizations due to COPD in the HSA.

²⁹ National Heart, Lung and Blood Institute. (2013). *What is COPD?* Retrieved from: <http://www.nhlbi.nih.gov/health/health-topics/topics/copd>

Asthma

Asthma is a major health issue in the nation. National data indicate that one in 12 adults and one in 11 children have asthma.³⁰ Table 20 examines ED visits and hospitalization due to asthma (all ages). Data for the Brookings ZIP code and Oregon State were not available for these two indicators.

Table 20: ED visits and hospitalizations due to asthma (per 10,000 population)

Asthma	Geographic Area	ED Visits	Hospitalizations
	95531	256.9	46.6
	95543	143.2	N/A
	95548	255.2	52.8
	95567	203.9	52.8
	97415	N/A	N/A
	<i>Del Norte County</i>	251.5	48.4
	<i>Curry County</i>	33.6	13.3
	<i>CA State</i>	149.1	68.7
	<i>OR State</i>	N/A	N/A

Note: a 0 indicates a numerical value; N/A represents that the data is either not available or the count for that indicator and ZIP code fell below acceptable masking levels.

ED visit rates due to asthma were elevated in three of the four California ZIP codes of the HSA, with the highest rates in ZIP codes 95531 (Crescent City) and 95548 (Klamath). The Del Norte County rate was also drastically higher than the state benchmark and more than seven times higher than the Curry County rate. This pattern was also true for hospitalizations with the exception of the state benchmark rate that was lower than all ZIP code and county rates in the HSA.

Dental Health

Dental health is very important for the overall health of an individual. Both key informants and focus group participants mentioned oral health as a health concern. Though dental insurance was re-instated for adults in 2014 under Medi-Cal, the data presented here is from 2013. Table 21 provides data on ED visits and hospitalizations related to dental issues.

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

Dental	Geographic Area	ED Visits	Hospitalizations
	95531	230.6	6.6
	95543	108.0	N/A
	95548	275.4	N/A
	95567	87.3	N/A
	97415	N/A	N/A
	<i>Del Norte County</i>	221.4	6.6
	<i>Curry County</i>	27.0	2.5
	<i>CA State</i>	41.8	7.9
	<i>OR State</i>	N/A	N/A

³⁰ Centers for Disease Control and Prevention. (n.d.) *Asthma Fact Sheet*. Retrieved from: http://www.cdc.gov/asthma/impacts_nation/asthmafactsheet.pdf

ED visits due to dental health issues were elevated in all of the four ZIP codes in the California portion of the HSA with the highest rate in ZIP codes 95548 (Klamath) and 95531 (Crescent City). Both of these ZIP codes had rates more than five times the state rate. Del Norte County had an ED visits rate due to dental health issues that was nine times higher than the Curry County rate, and five times higher than the state benchmark. Data on hospitalizations were only available for one ZIP code in the HSA, and it was below the state benchmark. However, the Del Norte County rate was more than twice the rate of Curry County for hospitalizations.

Health Factors – Health Behaviors, Clinical Care, Social and Economic Factors, and the Physical Environment

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

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

Tobacco Use

Tobacco use is a risk behavior that is commonly addressed through educational interventions, and a major contributor to most of the leading causes of death in the US, especially heart disease, COPD, asthma, and cancer. Though smoking data are not available for the entire SCH service area, smoking rates for Curry County showed 15% of the surveyed populations reported they smoked every day or most days, lower than the Oregon state percent of 17%. In Del Norte County 16% of adults were current smokers compared to a California state percent of 13%.³¹ Many key informants and community members spoke about the need for smoking prevention programs and smoking cessation education/programs.

Diet and Exercise – Obesity, Food Access, and Physical Activity

Obesity

Consideration of diet and exercise data for this health assessment also included an examination of obesity data. Though obesity is a clear outcome of poor dietary choices and a lack of adequate exercise, it is also a contributor to most of the morbidity and mortality health conditions mentioned in the previous section of the report. Table 22 displays the percentage of adults that were obese for Del Norte and Curry Counties in 2012 compared to the state percent, as reported from the national Behavioral Risk-Factor Surveillance System. The percent of community residents that were obese was higher in both counties in comparison to the corresponding state percent, and highest in Curry County overall.

³¹ 2016 *County Health Rankings*. Note: the method of calculating smoking rates changed for 2016 and these rates should not be compared to previous years.

Table 22: Self-reported BMI for the determination of percent obese for Curry and Del Norte Counties in comparison to the state benchmark rate

Geographic Area	Percent Obese
Del Norte County	27
Curry County	30
<i>CA State</i>	24
<i>OR State</i>	26

Limited Access to Healthy Foods

Having limited access to healthy foods is defined for rural areas as the percent of population in a geographical area that lives more than 10 miles from a grocery store. Table 23 shows 2010 data on healthy food access. Del Norte had a higher percentage of people living in poverty with limited food access than Curry County. The percent of population with limited healthy food access was three times more for Del Norte in comparison to the state percent at 3%

Table 23: Percent of population with limited access to healthy foods

Geographic Area	Percent of population in poverty far from a grocery store
Del Norte County	10
Curry County	5
<i>CA State</i>	3
<i>OR State</i>	5

Fast Food Restaurants

Data presented in Table 24 display the percent of all restaurants in a geographic area that were fast food as identified in 2010. Data for both Del Norte and Curry County showed lower percentages than the corresponding state benchmarks.

Table 24: Proportion of restaurants that were fast food

Geographic Area	Percent of all restaurants that are fast food
Del Norte County	44
Curry County	25
<i>CA State</i>	48
<i>OR State</i>	43

Food Deserts

The USDA defines food deserts as: “urban neighborhoods and rural towns without ready access to fresh, healthy, and affordable food. Instead of supermarkets and grocery stores, these communities may have no food access or are served only by fast food restaurants and convenience stores that offer few healthy, affordable food options.”³² The lack of access to healthy food results in a poor diet and can lead to higher levels of obesity and other diet-related diseases, such as diabetes and heart disease. The USDA further describes a food desert as “a census tract with a substantial share of residents who live in low-income areas that have low levels of access to a grocery store or healthy, affordable food retail

³² US Department of Agriculture. (n.d.) *Food Deserts*. Retrieved from: <https://apps.ams.usda.gov/fooddeserts/fooddeserts.aspx>

outlet.” Figure 13 shows the area of the HSA that was a food desert. Crescent City, Bertsch- Oceanview, and Klamath were identified as food deserts.

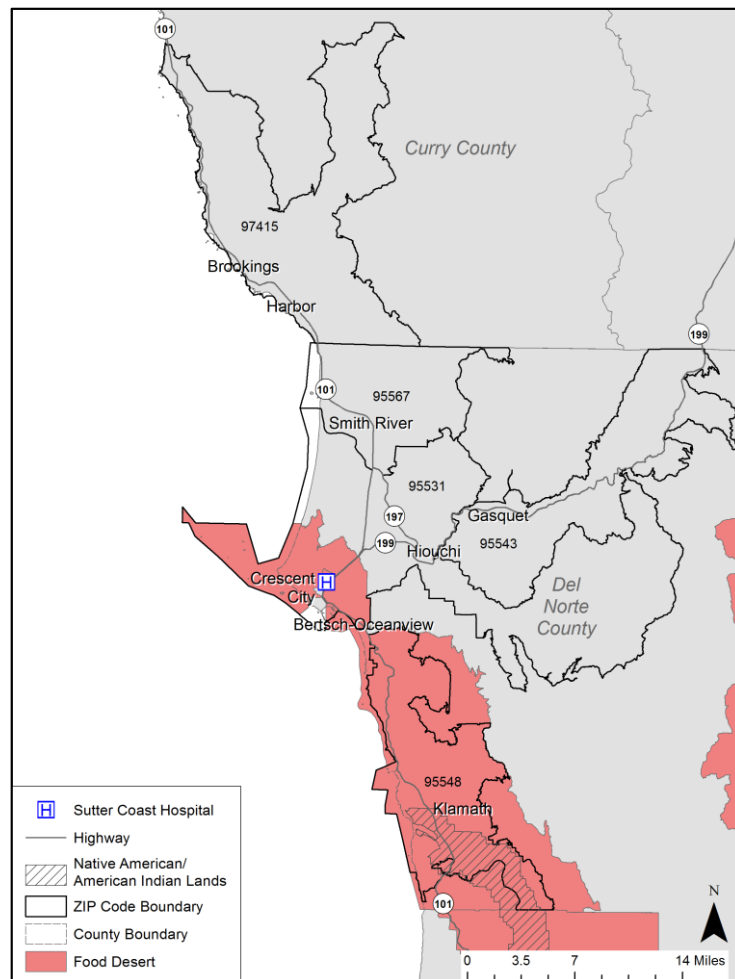
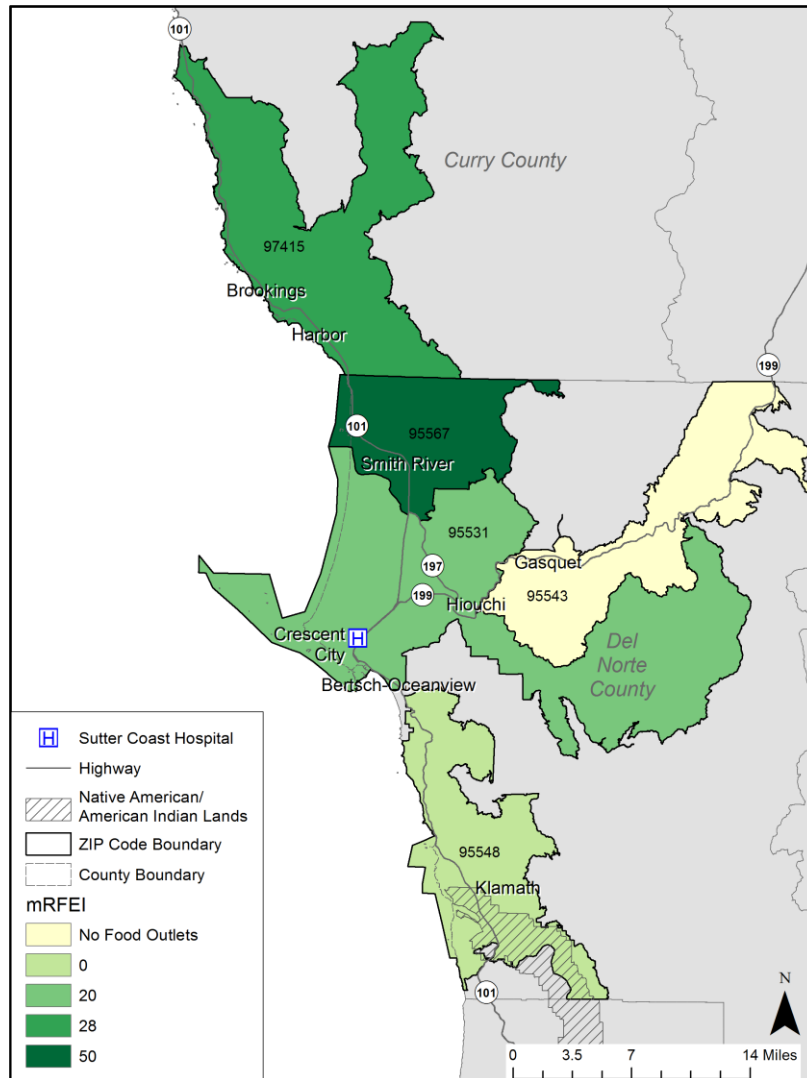


Figure 13: USDA defined food deserts for SCH HSA

Modified Retail Food Environment Index (mRFEI)

The mRFEI (modified Retail Food Environment Index) is an index that represents two aspects of food availability: both the presence of food outlets within a ZIP code, as well as the relative abundance of healthier food outlets. Negative mRFEI values occur in areas with no food outlets. All other values report the percentage of healthier food outlets, out of all food outlets, in the ZIP code. Figure 14 shows the mRFEI for the SCH HSA. Lighter areas indicate poor or no access to healthy food outlets and darker areas indicate greater access to healthy food outlets.



Examination of the retail food environment across the SCH HSA showed the Gasquet area as having no food outlets, with 20% or fewer of the total food outlets in Klamath considered healthy food outlets. The most abundant healthy food environment was seen in the Smith River area, just south of the Oregon border.

Access to affordable and healthy food was the fifth significant health need for the SCH HSA. Key informants and community members spoke about the lack of access to healthy food throughout the HSA, including the high cost of healthy food, the overabundance of unhealthy food, and the long distance to access a grocery store for many of the residents. As one community member stated: *“We have grocery stores and restaurants but the cheapest most readily available food in our community is not healthy, and you see it in the kids. You see them drinking Monster energy for breakfast”* (FG_6). Key informants and community members consistently mentioned the high price for healthy food in the HSA saying that affordability is a major barrier to eating healthy. Also mentioned was the long distance to grocery stores given the rural nature of the area. One provider called it the need for *“food transportation”* (KI 15), especially in the outlying areas. As another provider stated: *“So some of our*

remote regions—you can't go to a grocery store because there's not a grocery store and then driving through town it's just fast food restaurant after fast food restaurant" (KI_18).

Physical Inactivity

Physical activity was measured in this assessment in a number of ways. One measure was self-reported data on physical activity engagement, or the lack of engagement. This indicator is defined as the percentage of adults over 20 that report no leisure-time physical activity. As Table 25, shows Curry County had a higher percent of population reporting no physical activity in comparison to Del Norte County and Oregon State.

Table 25: Percent of adults reporting no physical activity for Del Norte and Curry Counties compared to state benchmarks

Geographic Area	Percent of adults reporting physical inactivity
Del Norte County	18
Curry County	24
CA State	18
OR State	18

Access to Exercise Opportunities

Access to recreational areas is a determinant of whether people will be physically active. This indicator measures the percentage of people in a county who live close to a location where they can engage in physical activity. These locations are defined as parks and recreational facilities (gyms, community centers, YMCAs, dance studios, and pools). Data in Table 26 show that Del Norte County falls drastically short of exercise opportunities in comparison to Curry County and the state benchmarks.

Table 26: Percent of population with access to exercise opportunities for Del Norte and Curry Counties compared to state benchmarks

Geographic Area	Percent of population who live close to a location for physical activity
Del Norte County	3
Curry County	18
CA State	9
OR State	12

Park Access

Table 27 shows the percent of the population for Curry and Del Norte Counties that lived within one-half mile of a park. Only 13% of the population in Del Norte County lived within one-half mile of a park. This rate is drastically lower than the Curry County percent at 36%, and the state percent for California.

Table 27: Percent of population within 1/2 mile of park for Del Norte and Curry Counties compared to state benchmarks

Geographic Area	Percent of populations who live within ½ mile of park
Del Norte County	13
Curry County	36
CA State	58
OR State	54

Alcohol & Drug Use

Adult Binge Drinking

Binge drinking is defined as drinking more than four (for women) or five (for men) alcoholic beverages in one occasion within the last 30 days. Reported rates of binge drinking were not available at the sub-county level for the SCH HSA. However, data at the county level reported that more residents in Curry reported binge drinking than in Del Norte and the Oregon state percent.

Table 28: Self-reported adult heavy or binge drinking in the past year for Del Norte and Curry Counties compared to the state benchmarks

Geographic Area	Percent Binge Drinking
Del Norte County	9
Curry County	19
CA State	17
OR State	16

Substance Abuse

Rates of ED visits and hospitalizations related to substance abuse are not direct measures of prevalence of substance abuse in the ZIP codes, but rather provide a glimpse into the struggle with these issues across the HSA. Table 29 shows the rates for ED visits and hospitalizations by ZIP code due to substance abuse. Data for the Brookings ZIP code and Oregon State were not available for these two indicators.

Table 29: ED visit and hospitalization rates due to substance abuse issues compared to county and state benchmarks (rates per 10,000 population)

Mental Health: Substance Abuse	Geographic Area	ED Visits	Hospitalizations
	95531	1356.7	203.4
	95543	763.8	112.1
	95548	1579.4	310.8
	95567	973.5	205.3
	97415	N/A	N/A
	Del Norte County	1332.9	209.5
	Curry County	182.8	53.7
	CA State	256.3	145.8
	OR State	N/A	N/A

Note: a 0 indicates a numerical value; N/A represents that the data is either not available or the count for that indicator and ZIP code fell below acceptable masking levels.

All ZIP codes in the California portion of the SCH HSA had elevated rates of ED visits due to substance abuse in comparison to the state benchmark. The highest rates were seen in ZIP codes 95548 (Klamath) and 95531 (Crescent City), with rates more than five times the state rate. The Del Norte County rate was also high; more than five times the state rate and eight times the Curry County rate. Hospitalizations due to substance abuse were high in three of the four California HSA ZIP codes with the highest rate in 95548 (Klamath). The rate in all four ZIP codes and for Del Norte County was drastically higher than the Curry County rate for this indicator.

Key informants and focus group participants pointed to mental illness, and specifically substance abuse and addiction, as key health issues for the SCH HSA. Specific mention was the usage of both illicit and prescription drugs by community members in the area. A few key informants spoke about their concern over drug usage in the middle and high school. As one key informant stated: *“I watched a child get arrested for dealing drugs in the parking lot of the middle school when we first moved here”* (KI_7). Another issue consistently mentioned was the presence of individuals that are homeless in the SCH HSA, who also struggle with substance abuse issues but lack access to any preventative addiction services.

Sexual Activity – Teen Birth Rate and STI Rates

Teen Birth Rate

The teen birth rate (births to women under the age of 20) is an indicator used in this assessment to examine sexual behavior throughout the HSA. The national rate of teen births (age 15-19) is currently 26.5 per 1,000 live births, and the California state rate was 28.3 per 1,000 live births.³³ Teen births pose several health issues. Teen mothers, especially those who are single, are more likely to have dropped out of high school and are less able to support themselves; a high percentage end up on public assistance. In fact, half of all current welfare recipients had their first child as a teenager.³⁴

Figure 15 shows the teen birth rate for SCH HSA. The Smith River ZIP code of 95567 and Crescent City ZIP code of 95531 had the highest teen birth rate in the SCH HSA. The rates in both of these ZIP codes drastically exceeded the previously mentioned state and county rates. Key informants and community members mentioned the need for pregnancy and STI prevention in the local school systems.

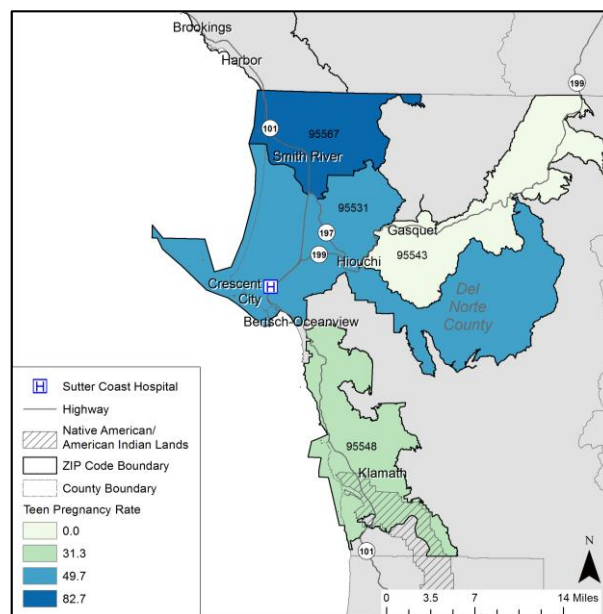


Figure 15: Teen birth rate for 15-19 year olds for the SCH HSA

³³ Centers for Disease Control and Prevention. (2015). *Teen Births*. Retrieved from: <http://www.cdc.gov/nchs/fastats/teen-births.htm>

³⁴ Sawhill, I.V. (2001). *What can be done to reduce teen pregnancy and out of wedlock births?* Retrieved from: <http://www.brookings.edu/research/papers/2001/10/childrenfamilies-sawhill>

Sexually Transmitted Infection (STI) and HIV/AIDS

Rates of STIs, including chlamydia and HIV, help describe engagement in risky sexual behavior in the HSA. Given that STIs are largely preventable, knowing the degree to which community members are affected by STIs helps with targeting interventions for treatment and prevention. Table 28 displays incidence rates for chlamydia and HIV prevalence rates for Del Norte and Curry Counties in comparison to state and national benchmarks. Rates were above the state comparative benchmarks for gonorrhea, and below for chlamydia. As Table 30 shows, incidence rates for Chlamydia and HIV prevalence in the SCH HSA were lower than both the state and national benchmarks.

Table 30: Incidence of chlamydia and HIV prevalence for Del Norte and Curry counties compared to the state and national rates (per 100,000)

Geographic Area	Chlamydia Incidence Rate	HIV Prevalence rate
Del Norte County	178	121
Curry County	98	46
CA State	404	350
OR State	322	157
National	456	295

Clinical Care – Access to Care and Quality of Care

Health Professional Shortage Areas and Ratios of Population to Providers

Health Professional Shortage Areas (HPSAs) are designated by the US Government Health Resources and Services Administration (HRSA) as having a shortage of primary medical, dental, or mental health professionals; these shortages may be geographic (e.g., a county or service area); demographic (e.g., low income population) or institutional (e.g., comprehensive health center, federally qualified health center, or other public facility).³⁵ The data that follow includes HPSAs for primary care, mental health, and dental care providers in the HSA. In addition, the ratio of population to providers is also provided in order to further examine access to care for the SCH HSA.

Primary Care Providers – Ratio of Population to Primary Care Providers

The ratio of population to primary care providers was used as an indicator in this assessment to examine access to health care. As Figure 16 shows, the ratio was lowest in Del Norte County in comparison to Curry County, but higher than the California and Oregon state ratios.

³⁵ Health Resources and Services Administration. (n.d.). *Primary medical care HPSA: Designation Overview*. Retrieved from: <http://bhpr.hrsa.gov/shortage/hpsas/designationcriteria/primarycarehpsaoverview.html>

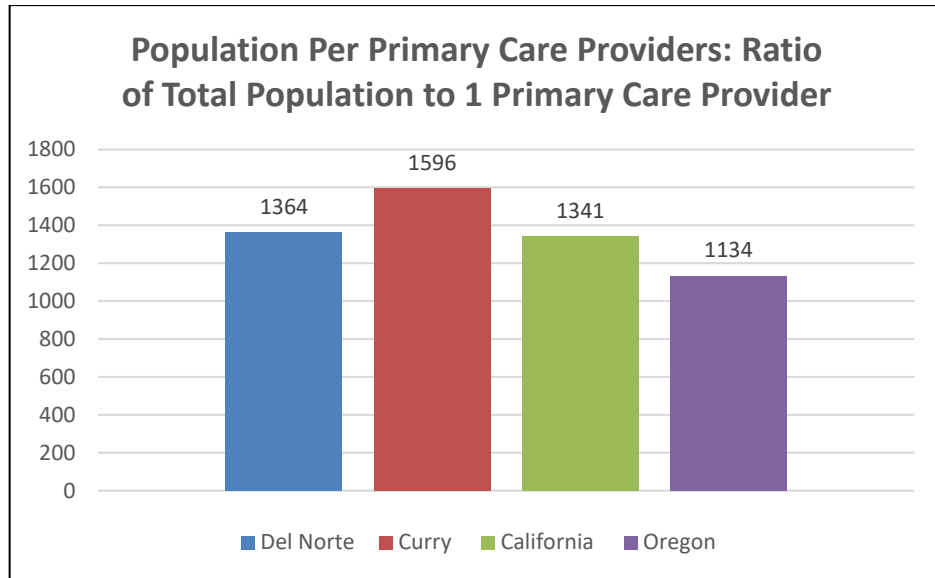


Figure 16: Primary care providers in the SCH HSA

Health Professional Shortage Area – Primary Care

As Figure 17 clearly shows, the entire SCH HSA is considered a Primary Care Health Professional Shortage Area. Key informants and community members consistently spoke about the lack of primary health care in the area. A more detailed description of the qualitative findings follows.

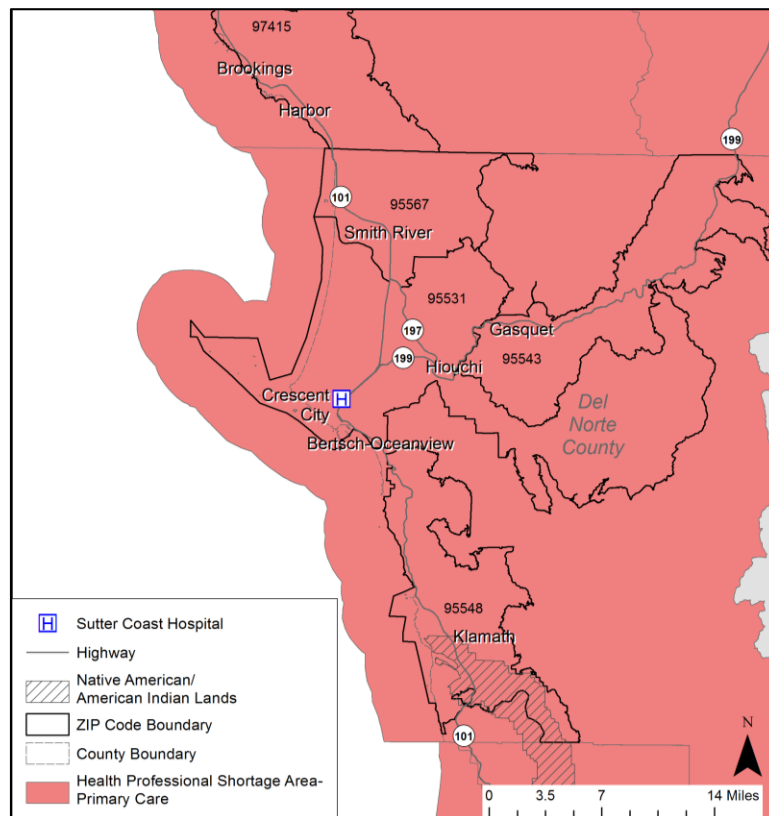


Figure 17: HPSA for Primary Care for the SCH HSA

Mental Health Providers – Ratio of the Population to Mental Health Providers

The ratio of population to mental health providers helps examine access to care for mental illness in the HSA. As Figure 18 shows, the ratio for Curry County was clearly higher for mental health care providers in comparison to Del Norte County. Del Norte County had the lowest ratio at 1,101 residents to one mental health provider, clearly below the ratio for the state at 1,829 residents per mental health care provider.

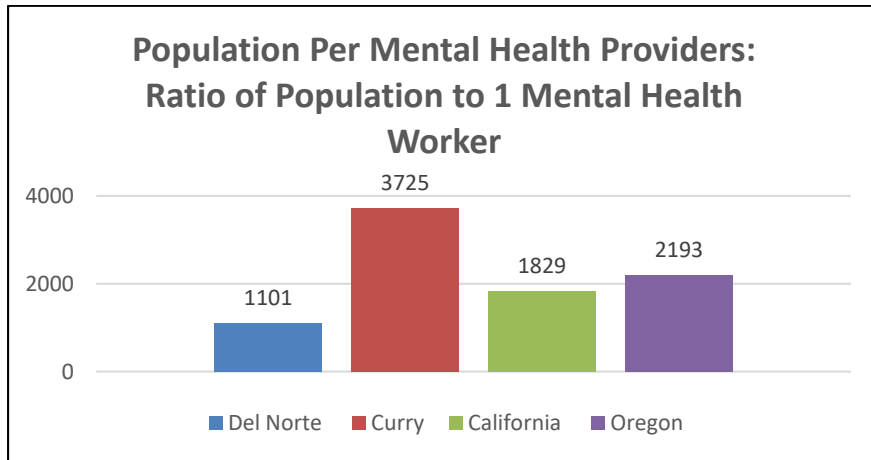


Figure 18: Mental health care providers in the SCH HSA

Health Professional Shortage Area – Mental Health

Figure 19 displays census tracts within the HSA that were identified as federally designated mental health HPSAs. Similar to the primary care HPSA data, the entire SCH HSA is considered a HPSA for mental health providers.

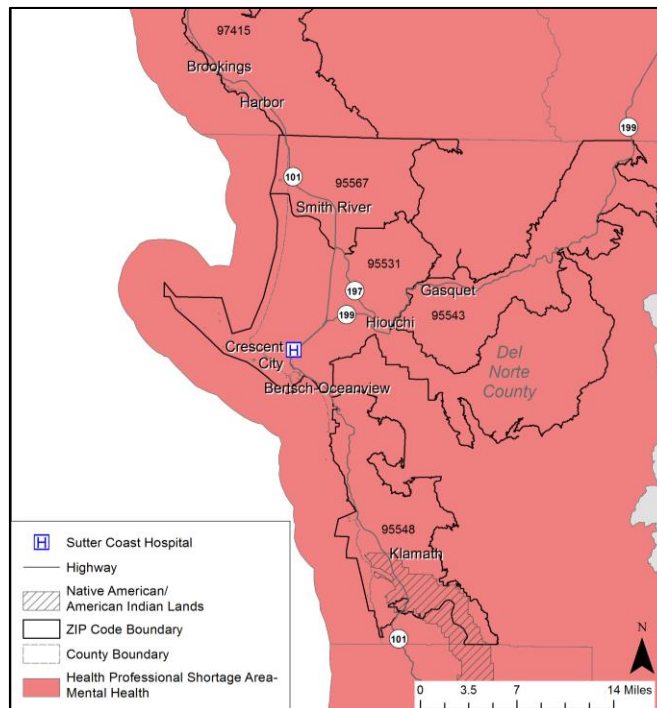


Figure 19: Mental health HPSAs for the SCH HSA

Dental Care Providers – Ratio of Population to Dental Care Providers

As Figure 21 shows, Curry County had a higher ratio of dental care providers to population than Del Norte County. The Del Norte County ratio was slightly higher than the state ratio for California.

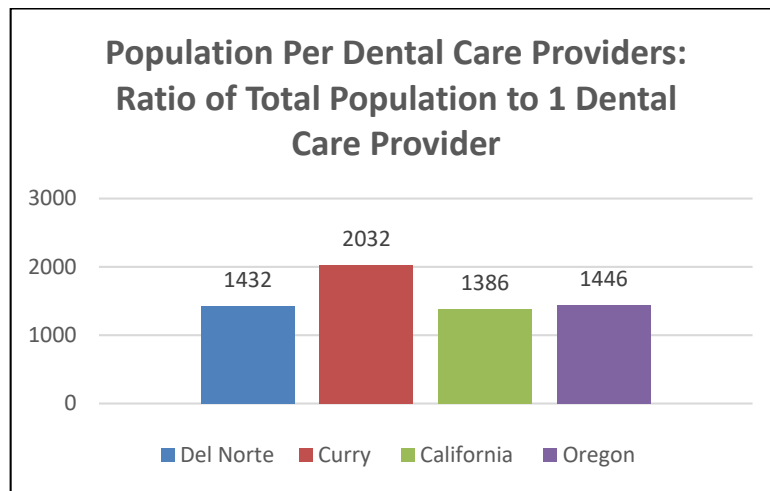


Figure 20: Dental care providers for the SCH HSA

Health Professional Shortage Area – Dental Care

Figure 20 displays the HPSA-Dental Care for the SCH HSA.

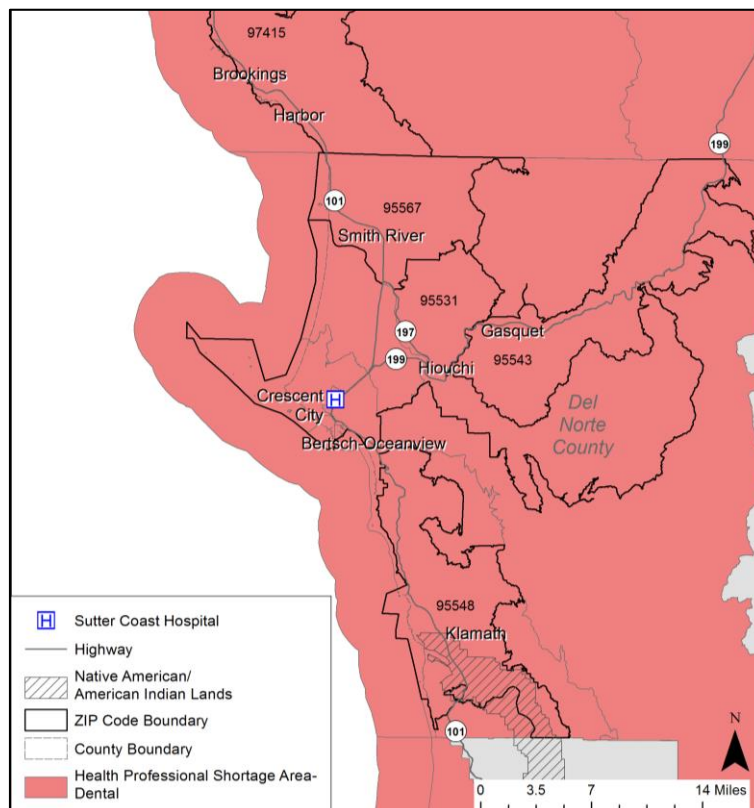


Figure 21: Dental health HPSA for SCH HSA

Like primary care and mental health care, the entire SCH HSA was a HPSA for dental care services.

Access to Care – Qualitative Findings

Qualitative findings pointed to the need for increased access to primary care, mental health services, dental care, and specialty care for area residents. Access across the entire care spectrum was the biggest finding of the SCH CHNA. Though participants spoke about the need for increased access to primary care, mental health care, dental, and specialty care separately, many of the challenges and barriers were similar. Challenges mentioned by key informants and community members consisted of the difficulty recruiting and retaining providers in the area, the inability to meet the health care needs of the community with current providers, long wait times for available care, and the cost of care.

Participants in the assessment consistently mentioned the challenge of recruiting and retaining health providers. As one provider said: *“I think in terms of service, the big issue right now is getting and keeping physicians here”* (KI_6). One informant spoke about how many providers in the area stayed short periods of time, circling in and out of the area every few months to a year. A community member said: *“In my personal experience I found that good doctors don’t stay around long, right? The dentists swap out every two, three months”* (FG_1). They spoke about how the changing of providers greatly affects the health of the community as they lose a continuum of care. One key informant spoke about it from the mental health care perspective and said:

As far as the clinical side of things, I hear people talk a lot about “I wish I could just have a relationship with my provider,” that there is too much turn over that a lot of people have just stopped seeking services, especially when it comes to mental health. They say they are tired of telling their story to the fifth provider (KI_15).

Many felt the biggest barrier to recruitment and retention was the lack of economic and social engagement activities in the area. This was something that was heard across multiple key informant interviews and focus groups. A community member stated: *“It’s really hard to have family establishment—which means we don’t really have much to offer new providers except the beauty of the nature that we offer”* (FG_1). One key informant said:

Some of the time it’s hard to keep consistent providers for people and Brookings has the same issue, and I believe United Indian Health Services seem like they are also always advertising for people. People move in with their spouse, their spouses don’t like it here, get that a lot, can’t live here because they don’t realize how far away from a mall and actual city they are (KI_5).

Given the challenge of recruiting and retaining providers, participants spoke about the lack of the current care system in the area to meet the needs of the existing population, and how this created added strain on the local emergency room. As one key informant stated about the care network of the area: *“There’s not a lot of depth on the bench”* (KI_9). The lack of capacity affects the length of wait times to access care from an already-busy care provider system. Participants spoke about waiting weeks and sometimes months for an appointment, including pediatric care and obstetrics. One community member said:

My number one issue would be PCP [primary care physician] access. As a general rule almost everybody in our community can get coverage in one form or fashion, but can they get that

clinician to take care of them? It was a three-month wait for me to be seen by a physician in this community (KI_12).

Additionally, a general lack of specialty care providers in the area required many to travel outside of the area for care, adding additional challenges with affordability, follow up care, transportation issues, and related issues.

The costs of access to medical services was also consistently mentioned by participants. One community member stated: *“When I had insurance, it was cheaper for me to just go to the doctor and pay cash...than to even use the insurance because the rate that they charge you is less if you are a cash paying patient”* (FG_7). Another community member added:

Or even if you haven’t had insurance for a long time, you are a fairly young person, you are fairly healthy, but you have an issue and you go and your insurance has a \$5,000 deductible. And so you are paying like crazy to go see a doctor while the incentive is not to go see the doctor, even though for your benefit you should, but the financial incentive is to not do it (FG_7).

Health Insurance Status

With the passage of the Affordable Care Act uninsured rates have decreased. However, many residents living within the SCH HSA remained uninsured, and many of these residents were particularly vulnerable. Table 31 displays the percentage of uninsured residents in the SCH HSA. ZIP code 95548 (Klamath) had the highest percentage of uninsured residents in the HSA at 20.3%, higher than the county and state benchmark.

Table 31: Percent uninsured by ZIP code compared to county and state benchmarks

Uninsured Rates	Geographic Area	Percent Uninsured
	95531	15.1
	95543	0.0
	95548	20.3
	95567	14.7
	97415	17.6
	<i>Del Norte County</i>	<i>15.0</i>
	<i>Curry County</i>	<i>16.8</i>
	<i>CA State</i>	<i>17.8</i>
	<i>OR State</i>	<i>15.8</i>

Note: a 0 indicates a numerical value; N/A represents that the data is either not available or the count for that indicator and ZIP code fell below acceptable masking levels.

Health Care Costs

Health care cost was included in the assessment as cost is a major contributor to access to care, and a measure of the efficiency of the health care system in a given geographical area. Figure 22 displays the health care costs per Medicare enrollee for both the Del Norte and Curry Counties, in comparison to state benchmarks. Though the ideal costs per enrollee has yet to be determined, the cost spent on Medicare enrollees in Del Norte County falls below the state rate for California.

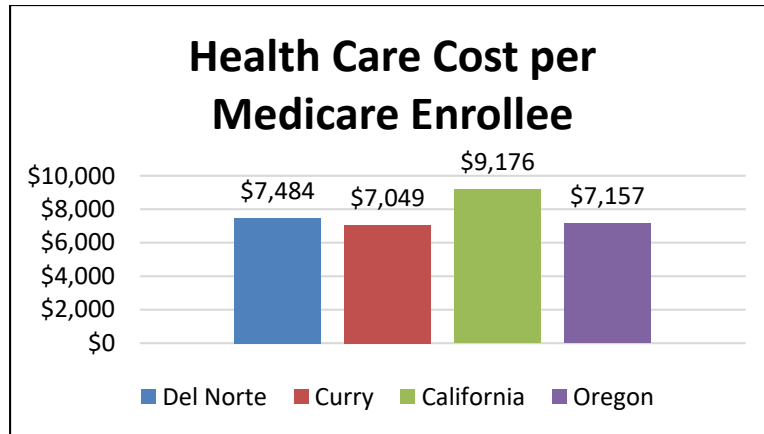


Figure 22: Health Care cost per Medicare enrollee

As mentioned previously in this report, many key informants and community members spoke about the high costs of care in the SCH HSA. One key informant expressed a deep concern over this issue stating:

It's one of the biggest issues I have today with access to healthcare in this community is cost. We need to understand, I've got to go back to this monetary piece just from my personal experience. We need to understand why it costs so much to deliver health in our area. Whether you are a not-for-profit hospital like Sutter, whether you are an Open Door Clinic, what is the barrier to delivering health in our area and why are the charges so high? (KI_9).

Quality of Care – Hospitalization and Emergency Department Utilization, Preventable Hospitalizations, and Diabetes Monitoring

Emergency Department and Hospital Utilization

Total ED visit and hospitalization rates can shed light on the overall health status of a community, and describe the state of the healthcare system, including access to primary healthcare services. In some instances community residents are unable to obtain care in an ambulatory setting. Some obtain primary care in the local hospital ED, and others may allow a health condition to become acute and then seek care in the ED. In some instances, residents are hospitalized for these conditions. Table 32 shows the distribution of ED and hospitalization utilization by SCH HSA residents.

Table 32: Total ED visits and hospitalizations by geographical areas for the SCH HSA

	Geographic Area	Total ED visits	Total Hospitalizations
Total ED Visits & Hospitalizations	95531	5934.71	885.71
	95543	3780.56	746.00
	95548	5862.41	975.36
	95567	5079.80	1005.46
	97415	N/A	N/A
	Del Norte County	5826.67	897.32
	Curry County	1146.02	323.73
	CA State	2756.38	1020.26
	OR State	N/A	N/A

All four California ZIP codes in the HSA had a rate of ED visits that exceeded the California state benchmark rate. The highest rates were in ZIP codes 95531 (Crescent City) and 95548 (Klamath). The total hospitalization rates for the HSA were lower than the comparative California benchmark. However, total hospitalizations for Curry County was almost a third of the Del Norte County rate.

Preventable Hospitalizations

Preventable hospital stays are a measure of the lack of care in the primary care setting as well as an over-usage of the ED or hospital for conditions that were preventable. Figure 23 shows the rate of preventable hospital stays per 1,000 Medicare enrollees for Del Norte and Curry Counties. The rate of preventable stays was higher in Del Norte County than in Curry County. However, the Del Norte County rate was slightly lower than the state rate for California. The Curry County rate was slightly higher than the Oregon State rate. Key informants and community members spoke about the need for increased preventive type of care in order to assure that advanced care (specialty care) is not needed.

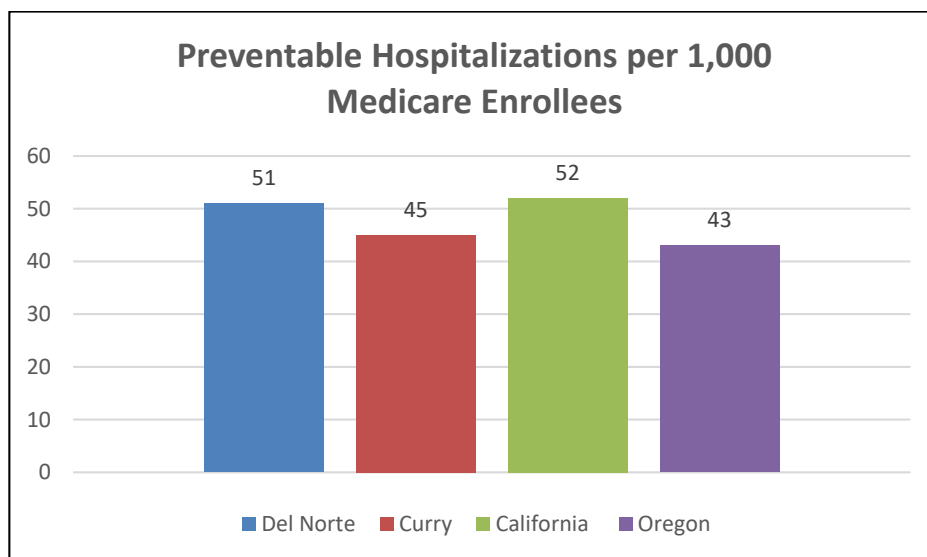


Figure 23: Preventable hospital stays for the SCH HSA

Diabetes Monitoring

Diabetes monitoring is the percentage of diabetic Medicare patients (age 65-75) who have been monitored in the past year with an HbA1c exam. As Figure 24 shows, a greater percentage of Medicare patient's report diabetic screening in Curry County as compared to Del Norte County. Also a lower percentage of Medicare patients in Del Norte County reported getting monitored than in the state of California. Some community members expressed a concern over a lack of health services in the area for management of diabetes, specifically the lack of endocrinologist and dialysis treatment facilities.

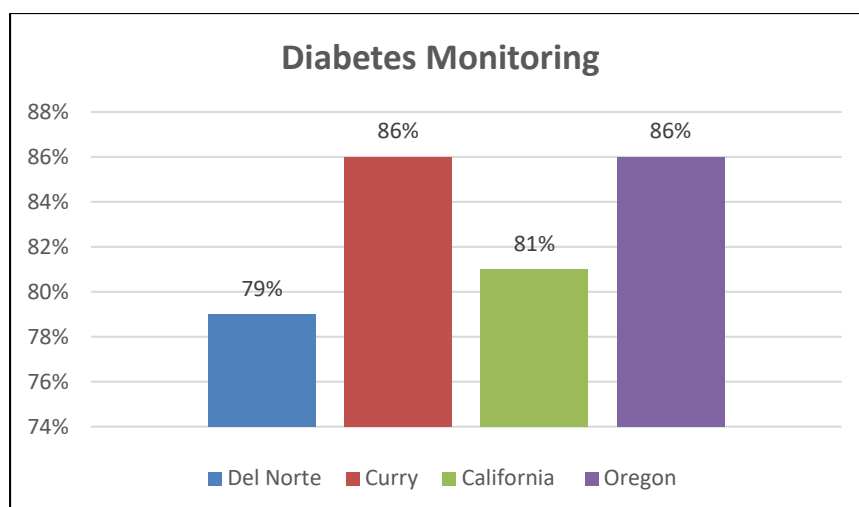


Figure 24: Diabetic Monitoring in the SCH HSA

Social and Economic Factors – Economic Stability and Community Safety

Economic Stability – Education and Income

Indicators of economic stability used in the CHNA included percent of residents that: 1) had no high school diploma, 2) lived below the federal poverty level, 3) were unemployed, and 4) received public assistance. Also, data are displayed that show the median household income for the HSA. Additional poverty indicators included children living in poverty, children on the Free and Reduced Lunch Program, and single-family households. Table 33 examines economic stability in the SCH HSA.

Examination of various socio-economic indicators in Table 33 revealed some clear findings. Almost every ZIP code in the California portion of the HSA, as a part of Del Norte County, had undesirable rates for the five indicators. The percent of adults with no high school diploma fell above the state percent in four of the five ZIP code areas, and the Del Norte County rate was high as well. The rate for Curry County was noticeably lower than the Oregon state percent. The percent of population living in poverty was also high in the HSA. The highest percentage was seen in ZIP codes 95543 (Gasquet) and 95548 (Klamath), with more than twice the percent of population living in poverty as compared to the state benchmark.

Further, median income throughout the area was drastically lower than the corresponding state benchmarks. The area with the lowest median income was in 95548 (Klamath) at \$27,243, less than half the state median income for California. The Del Norte County median income was slightly below the Curry County median income, and the median income for both counties was below their respective state incomes. Examination of the percent of population receiving public assistance showed high percentages across the HSA. The ZIP code with the highest percent was 95548 (Klamath) at more than twice the California percent. This pattern was also true for the percent of population unemployed. The Klamath area ZIP code of 95548 had a percent of unemployed more than twice the state percent.

Table 33: Percent adults with no high school diploma, living below 100% federal poverty level, median household income, percent on public assistance, and percent unemployed by ZIP code compared to county and state benchmarks

Geographic Area	Percent Adults with No High School Diploma	Percent Living in Poverty (Below 100%FPL)	Median Income	Percent Receiving Public Assistance	Percent Unemployed
95531	21.0	21.1	\$39,486	23.2	12.2
95543	0.5	38.6	\$29,038	20.1	8.9
95548	25.3	34.6	\$27,243	25.8	23.7
95567	22.6	17.8	\$43,125	8.5	7.2
97415	7.6	11.4	\$42,045	16.8	17.3
<i>Del Norte County</i>	20.9	21.8	\$37,909	22.1	12.3
<i>Curry County</i>	8.7	15.0	\$39,516	22.3	15.1
<i>CA State</i>	18.8	15.9	\$61,094	12.1	11.5
<i>OR State</i>	10.6	16.2	\$50,229	22.0	11.3

Note: a 0 indicates a numerical value; N/A represents that the data is either not available or the count for that indicator and ZIP code fell below acceptable masking levels.

Poverty – Children in Poverty, Percent of Children on Free and Reduced Lunch and Percent of Single-Parent Households

Examination of additional poverty indicators showed similar patterns as those in Table 33. As Figure 25 shows, Del Norte County had the highest percent of population for all three indicators. The percentage in Del Norte County was higher than the Curry County percent and the California state percent. Additionally, the percent for Curry County was also higher than the Oregon State percent for all three indicators of poverty.

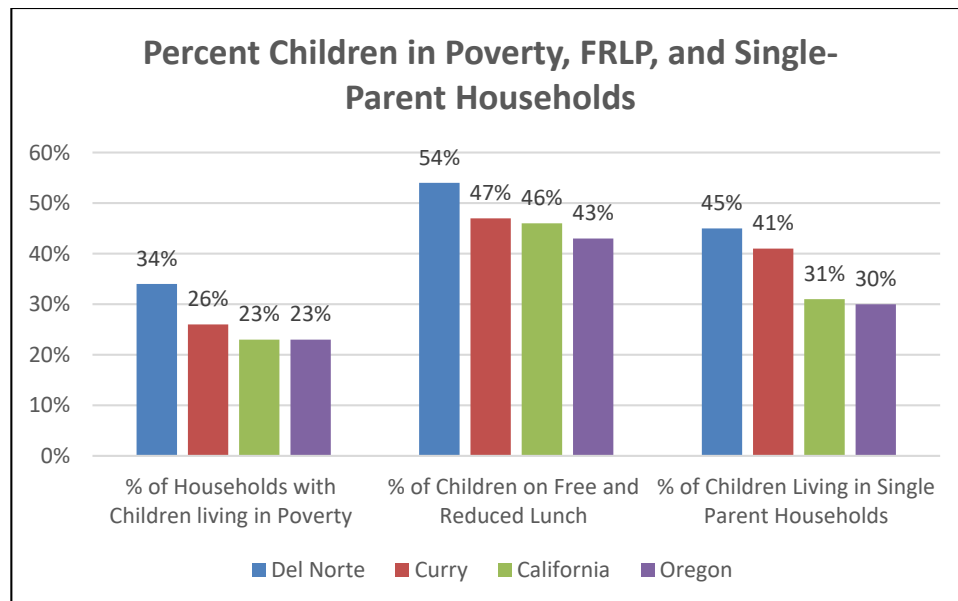


Figure 25: Children in poverty, FRLP, and single parent households for the SCH HSA

Poverty and Basic Needs – Qualitative Findings

Improvement to meet the basic needs of the community was the fourth significant health need for the SCH HSA. Consistently key informants and community members expressed the challenges many residents of the community felt in terms of economic and social resources. As mentioned previously in this report, participants expressed concern over the cost of health care in the area. Their concerns were also expressed regarding the balance of paying health care costs with other basic needs, like paying for housing, healthy food, and other educational/recreational opportunities. As one provider explained: *“There is grinding poverty here, and that is really hard to see and not be able to do something real about it day after day. We just have so many families who live in really deep generational poverty”* (KI_7).

Another key informant working as an area service provider said this about many residents: *“They have chronic economic stress, and chronic anxiety about trying to pay their bills...it is a hardship in and of itself”* (KI_6). Participants talked about the lack of economic opportunities in the HSA, and noted the job market that exists for the working class population is low wage.

For some community members also struggling with drug and alcohol disorders, the hardship became more pronounced. One key informant provided a clear picture of how difficult the challenge can be:

I feel like I just talk about this all the time. I think that for myself and most of the work that I have done with low income individuals they are struggling to stay clean and sober, to pay the bills, to get food on the table, to have a place to live. So going out, because I did a lot of home visits, going out and trying to work with the family for instance about getting in their child in for well-child checkups on a timely manner; “let’s get your baby’s shots,” and they are like, “I don’t know where I am going to live tomorrow” (KI_5).

Participants spoke about noticeable homelessness in the area, yet noted there were few services for the homeless. Some community members stated that the area attracts homeless individuals from other areas around the state, but were unsure as to exactly why homeless come to the area without services to assist them. One key informant said homeless individuals need *“...somewhere they can go to take a shower, personal hygiene. There are no available places they can go to”* (KI_10).

College Attainment

Acquiring a college degree can have a positive influence on health. As detailed earlier in this report, a higher percent of people in Del Norte County have no high school diploma in comparison to the California state percent. Examination of college attainment in the HSA revealed similar results. As Figure 26 shows a fewer percentage of people in Del Norte County went to college than in the state of California. The percent for Del Norte County was also lower in comparison to the Curry County percent. However, both the percent for Del Norte and Curry Counties were below their respective state percent’s.

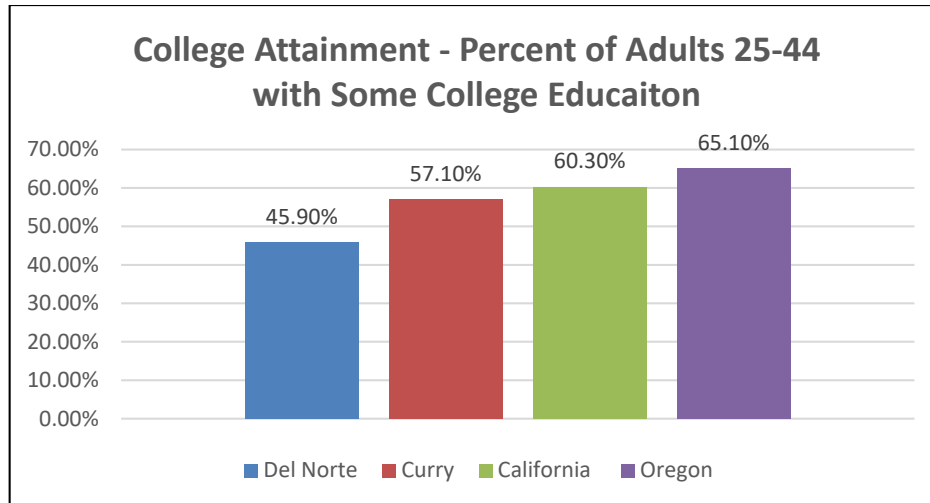


Figure 26: College attainment in the SCH HSA

Key informants and community members spoke about the lack of educational attainment among many young people of the area. They noted a “lackluster” attitude toward the desire to pursue a higher degree or different economic future for themselves. One key informant gave an example here:

I had a friend when I first moved here, her son was about to graduate, and she was just beside herself. She said, “I went to college, my husband went to college, and we have been saving for our kids for college. We have talked to them about college practically since the day they were born, and my son refuses to even apply to anything.” She said, “I ask him why and he’s like, ‘well, none of my friends are going to college mom. I don’t want to college, none of them are going.’” He has ended up okay, but he’s just like...the expectation isn’t there (KI_7).

Another key informant gave this example:

And there’s so many other kids that they say, “well, I don’t want to be a teacher or a nurse,” and especially when it comes to careers, they really limit themselves and they say, “well, my dad was a fisherman, so I guess I’ll do that.” So I think the hopelessness, a lot of it is not even... I think a lot of people have been disappointed so much and so much of their life has been turmoil, that even having hopes and dreams feels too out there to even think about that; and I see that in the young people quite a bit (KI_15).

This quote came from a key informant interview that talked about the lack of educational attainment among young people of the area:

And success for the young people here is defined as leaving. I can be in any freshman classroom and ask how many of you want to leave Del Norte County when you graduate and it’s the only thing that I can get the whole class to agree on (KI_15).

Community Safety – Major Crime Rates, Homicide, Assault, Domestic Violence, and Motor Vehicle Accidents with Fatalities

Feeling safe in the home you live in and the community through which you navigate is an important part of overall health. Both the physical and social environment in which community members live influences safety. People who feel safe in their home and community are more likely to

spend time outdoors in a variety of activities.³⁶ Conversely, repeated exposure to violence and crime could lead residents feeling traumatized and lacking trust in the safety of their community.

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

Violent Crime

Criminal activity in a community has a large effect on the community's actual and perceived sense of safety. Violent crimes are defined as offenses that involve face-to-face confrontation between the victim and the perpetrator, including homicide, forcible rape, robbery, and aggravated assault. The violent crime rate for both Del Norte and Curry Counties is provided in Table 34. The rate of violent crime in Del Norte County notably exceeded the rate in neighboring Curry County, but fell below the state rate for California. The Curry County rate was also lower than the corresponding Oregon State rate.

Table 34: Violent crime (per 100,000 population) by county for the SCH HSA

Geographic Area	Rate of Violent Crime
Del Norte County	383
Curry County	171
CA State	472

Homicide

Figure 27 provides an examination of homicide in the SCH HSA

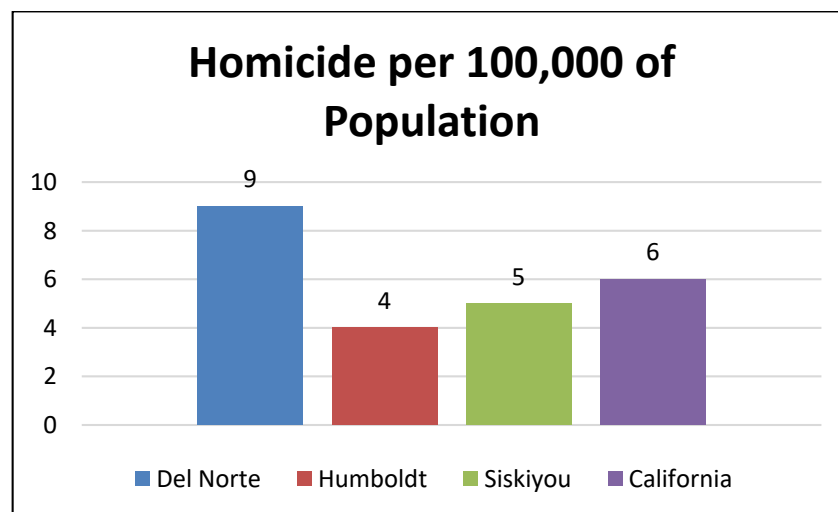


Figure 27: Homicides per 100,000 population in the SCH HSA

³⁶ Cubbin, C., Pedregon, V., Egerter, S. and Braveman, P. (2008). *Where we live matters for our health: Neighborhoods and Health*. Retrieved from: <http://www.commissiononhealth.org/PDF/888f4a18-eb90-45be-a2f8-159e84a55a4c/Issue%20Brief%203%20Sept%2008%20-%20Neighborhoods%20and%20Health.pdf>

Figure 27 reveals a rate for Del Norte County of nine per 100,000 population, clearly above the California state rate at 6 per 100,000. This rate was also above the neighboring county rates of Humboldt and Siskiyou. The homicide rates for Curry County was zero and the Oregon State homicide rate was 3 per 100,000 population.

Assault: Emergency Department Visits and Hospitalizations

Understanding safety in the SCH requires the examination of both violent crime rates and homicide as shown above, as well activities of intentional harm. Rates of assault (intentionally harming another person) are included in this assessment to gain an understanding of violence and safety in the SCH HSA area. Figure 28 shows ED visits related to assault for the SCH HSA.

ED visits due to assault was only available for three of the five ZIP codes in the SCH HSA. However, rates were noticeably high where data were available. ZIP codes 95531 (Crescent City) had the highest rate at 93.2 per 10,000 population. Klamath area ZIP code 95548 also had a high rate of ED visits due to assault at a rate of 92.8 per 10,000. The rate for Del Norte County was 90.31 per 10,000. These geographical areas had rates that were more than three times the California state rate of 30.55 ED visits per 10,000 population.

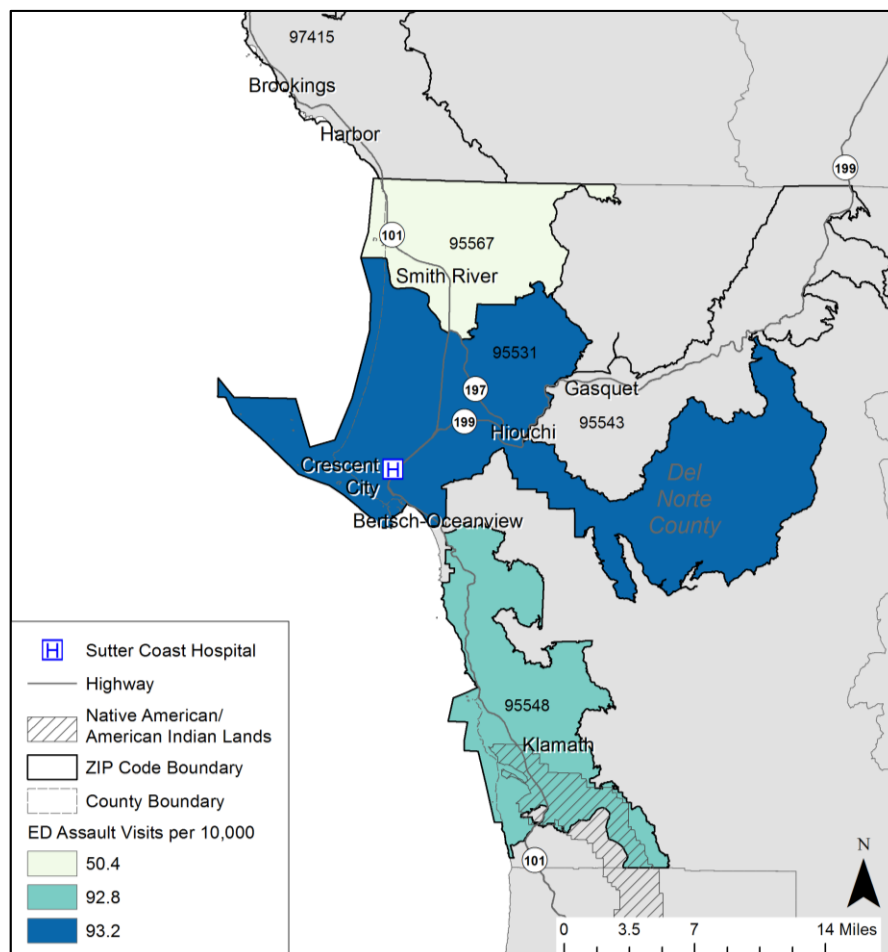


Figure 28: ED visits related to assault in SCH HSA

Domestic Violence

Examination of data on domestic violence for the HSA revealed that Del Norte County had the highest rate of domestic violence crimes in 2013 of any county in the State of California. Figure 29 shows the rate of domestic violence in Del Norte in comparison to the neighboring Humboldt and Siskiyou Counties. The rate for Del Norte County is more than eight times the state rate and drastically higher than the neighboring counties.

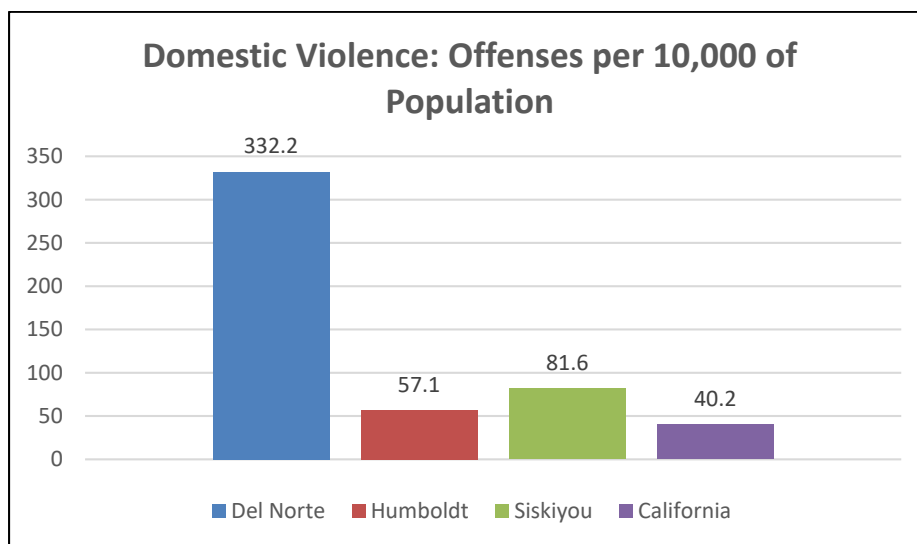


Figure 29: Domestic violence in SCH HSA

Data on domestic violence offenses were not available for Curry County. However, data on the rate of calls to domestic violence hotlines were available for Curry County and revealed that the county had a rate of calls to the hotline that fell below the Oregon state rate. The rate for the county was 211.5 calls per 10,000 population compared to the state rate at 237.7 calls per 10,000 population.

Key informants and community members confirmed the noticeable occurrence of domestic violence in the community. Many spoke about the high rates of domestic violence in the area and the influence that poverty, substance abuse, and the lack of preventive mental health services had on the domestic violence rates. As one key informant stated: *"Domestic violence rates are off the charts here. It is something almost double the state average for the number of substantiated cases. Child abuse and neglect is higher than the state average"* (KI_7).

Motor Vehicle Accidents with Fatalities

An examination of motor vehicle accidents (with a fatality) helps to understand the safety of the community as people travel through the area they work and live. Figure 30 shows traffic accidents that resulted in a fatality. Data indicate that the rate of traffic accidents resulting in a fatality were slightly higher in Del Norte County compared to Curry County. Additionally, the rates for both counties were more than double the corresponding state rates.

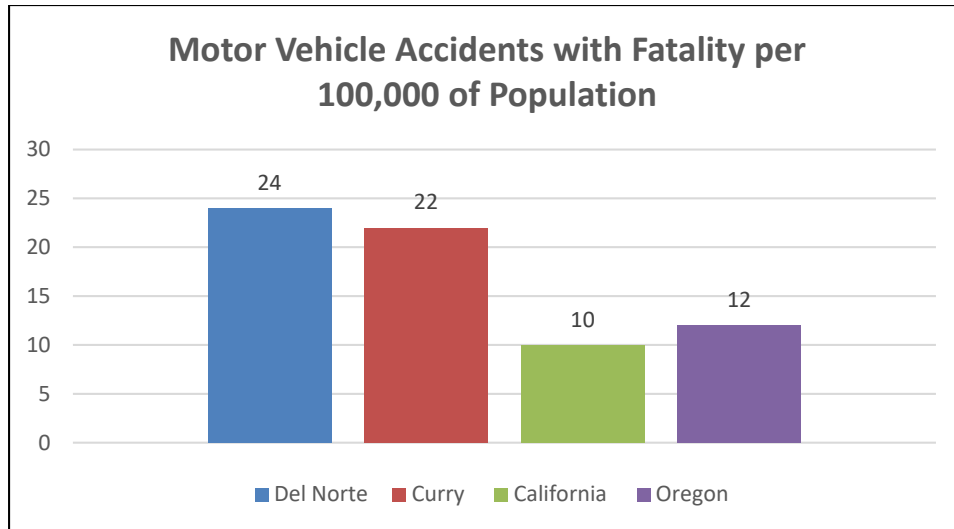


Figure 30: Motor vehicle accidents with a fatality in the SCH HSA

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

Air Pollution – Particulate Matter

Air pollution has a negative impact on respiratory health and is linked to asthma, COPD, chronic bronchitis, and other health ailments. Figure 31 shows a measure of air quality for the SCH HSA from the Centers for Disease Control and Prevention for 2011. Del Norte County fairs better in comparison to the state on air pollution defined as the daily fine particulate matter. The air pollution measure for Curry County is only slightly higher than Oregon State.

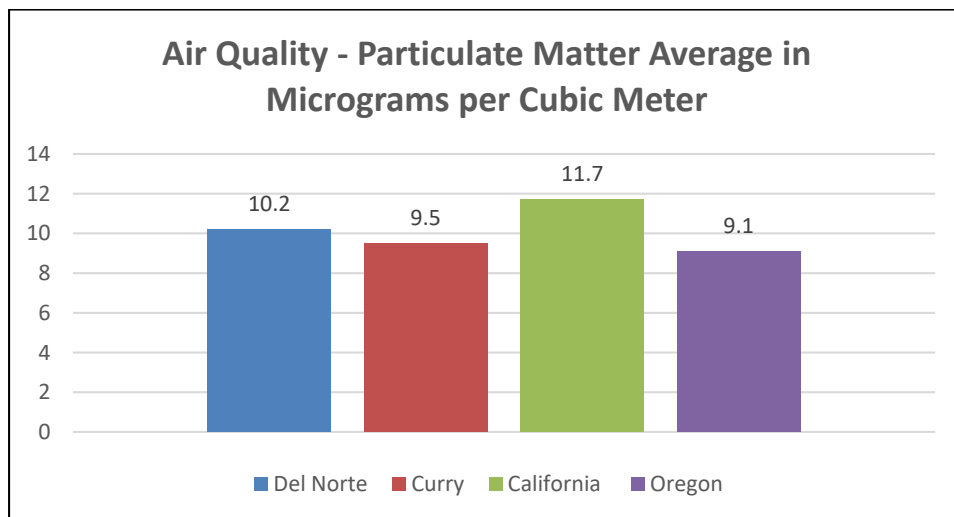


Figure 31: Air quality – particulate matter for the SCH HSA

Drinking Water Violations

Both Del Norte and Curry Counties had zero drinking water violations reported in 2013. Drinking water violations are the percent of population exposed to water exceeding a violation limit as set by the

Environmental Protection Agency. The percent for the state of California was 2% and Oregon State at 3%.

Though air pollution and water pollution were not noticeably higher in the HSA, key informants and community members talked about exposure to mold as a result of the climate and some substandard housing environments. A memorable story was told by a key informant about a mother afraid to lose her home and children, yet lived in a mold-infested home. They stated:

There's a woman who's deathly afraid that her children are going to be taken away from her. She lives in a home that's riddled with black mold. She has her children sleep in a tent at night because she thinks it's helping to filter the mold spores so her kids don't get sick. She won't report it because she thinks that somebody is going to come take her kids away (FG_6).

Housing & Transportation – Housing Stability, Costs, and Households with No Vehicle

Examining where people live and how they navigate their community is important to understand the health of the community overall. This section examines housing stability and households with no vehicle for transportation throughout the HSA.

Housing Stability

A consistent health need mentioned in the assessment was affordable, stable, and good quality housing. The lack of a stable place to live can have negative health effects on individuals and families. Table 35 shows rates for various housing stability indicators by ZIP code for the SCH HSA.

Table 35: Housing vacancy, people living per housing unit, and percent of population renting by ZIP code

Geographic Area	Percent Housing Vacancy	People Per Housing Unit	Percent Renting
95531	13.3	2.3	40.8
95543	27.4	1.5	24.4
95548	23.3	1.9	40.9
95567	17.3	1.9	33.9
97415	14.2	1.8	33.8
<i>Del Norte County</i>	<i>14.7</i>	<i>2.2</i>	<i>39.8</i>
<i>Curry County</i>	<i>17.6</i>	<i>1.8</i>	<i>32.2</i>
<i>CA State</i>	<i>8.6</i>	<i>2.7</i>	<i>44.7</i>
<i>OR State</i>	<i>9.6</i>	<i>2.3</i>	<i>38.0</i>

Housing vacancy was high throughout the SCH HSA, both at the ZIP code and county levels. The highest percentage of housing vacancy was found in ZIP code 95543 (Gasquet), more than three times the percent of California, followed by ZIP code 95548 (Klamath). The number of people per housing unit was highest in ZIP code 95531 (Crescent City) and lowest in 95543 (Gasquet). Examination of the percent of people renting by geographic area showed the highest percent in ZIP code 95531 (Crescent City) and 95548 (Klamath).

Cost of Housing

Further examination of housing in the SCH HSA included housing costs. This measure represents the percentage of people that live in renter-occupied housing units or owner-occupied housing units with a mortgage, and pay 30% or more of their household income on housing costs. Figure 32 shows

that approximately 42% of the population in Del Norte County and 38% of the population in Curry County spent more than 30% of their income on housing costs. This, along with the high rate of unemployment and lack of economic opportunities in the area, made it challenging to earn a livable wage.

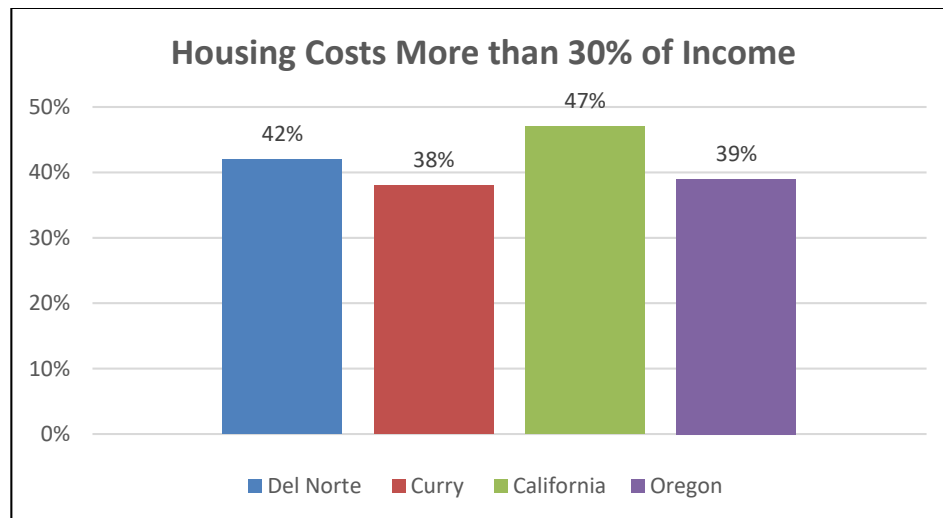


Figure 32: Housing costs more than 30% of income in the SCH HSA

Participants of the CHNA spoke about the high cost of housing throughout the HSA. Coupled with the lack of economic opportunity, the high rates of housing costs in the area created a challenge. As one community member stated: *“The other thing is housing, affordable housing. It is next to none and so that makes it difficult...so those are two big challenges for people if they don’t have a living wage”* (KI_18).

Households with No Vehicle

Traveling through a rural community requires access to safe and reliable transportation. The percent of households with no vehicle was included in this assessment in order to examine transportation needs in the area.

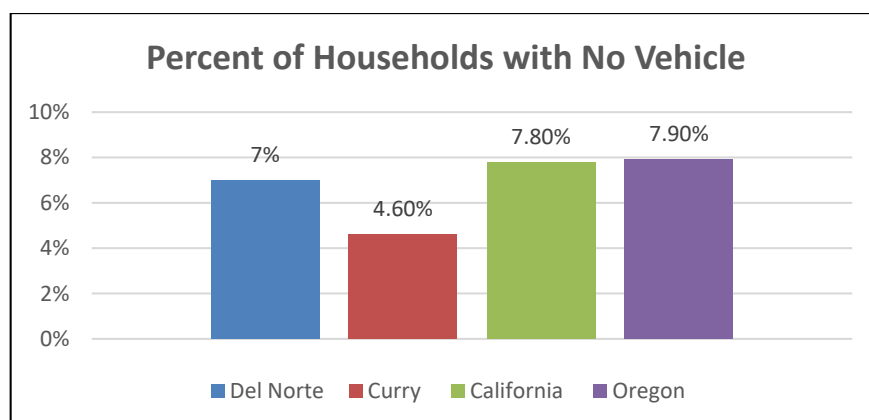


Figure 33: Households with no vehicle in the SCH HSA

Data showed that the percent of population with no vehicle was about the same in Del Norte County in comparison to the California state percentage. However, the percent for Curry County was clearly lower than the Oregon State percent.

Key informants and community members talked about challenges with transportation. Given the rural nature of the area, challenges with transportation included distance from one location to the next, the cost of transportation to access specialty care out of the area, and the cost of traveling long distances to access healthy foods. As one key informant stated: “*When food insecurity is a big deal, then transportation is a big deal*” (KI_5). In addition, many participants spoke about the hardship of having to drive long distances out of the area to receive care.

Community Expectations of Positive Outcomes – Qualitative Findings

The third significant health need of this assessment was “Community Expectations of Positive Outcomes.” This need emerged from the frequency of mention in the qualitative data. As presented previously in this report, key informants and community members spoke about the need for increased collaboration among all care providers, a change in cultural and attitudinal beliefs of residents of the area, a decrease in hopelessness, and a willingness to change and evolve as a community in order to improve the health of all community members. As one community member stated:

The one thing I’ve noticed that I’m not sure exactly what the words are for it, but it’s kind of like the hay-day of the county is past and now people are just like bummed and not sure what to do. And I think part of that is economic, just not having any industry that’s really driving. But there almost seems to be a mentality of like, “oh, the good times are gone” (FG_1).

Many participants spoke about the need for the care system to work collaboratively to improve not only the health care in the area, but also the image and social/economic opportunities. As one community member stated:

I think it’s empowerment of people and collaboration and partnership and take it as an opportunity rather than challenges and problems. So we just often neglect what we are holding as a beauty, physical beauty and beautiful things, national parks and state parks that offer so much more things to that we don’t really realize. We take advantage of what other communities don’t have. So we just begin with what we have; community partners and what people can bring to the table and how we utilize and maximize those people that are holding it as an asset. So I think there’s transparency, clear partnership, and bring it down the table; what the real issues are, creating some leadership, empowerment, community engagement (FG_5).

Resources Potentially Available to Meet Significant Health Needs

There were 60 resources identified in the HSA in accordance with the analytical method detailed in Appendix B. The method for resource identification began with the list of resources from the 2013 SCH CHNA, verifying that the resource still existed, and then adding other resources identified in the primary data for the 2016 CHNA. Examination of the resources revealed the following number of resources for each significant health need:

Table 36: Resources potentially available to meet significant health needs in priority order

Significant Health Need (in priority order)	Number of Resources*
Access to mental, behavioral, and substance abuse services	15
Access to quality primary care health services	15
Access to basic needs	27
Access to affordable, healthy food	4
Access to health education and literacy	18
Access to specialty care	6
Access to transportation	3
Safe and violence-free environment	10
Access to dental care and prevention	8
Pollution free living	1

*Note: some resources identified work to meet multiple significant health needs

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

Impact of Actions Taken Since the Previous CHNA

The final regulations issued by the Department of Treasury on December 29, 2014, regarding nonprofit hospitals conducting CHNAs require that each hospital's CHNA report include: "... an evaluation of the impact of any actions that were taken since the hospital facility finished conducting its immediately preceding CHNA to address the significant health needs identified in the hospital facility's prior CHNA(s)."³⁷ Prior to this report, SCH conducted its most recent CHNA in 2013. The 2013 CHNA identified seven specific health needs. Working within its mission and capabilities, SCH identified three of the seven needs to address in its community benefit implementation strategy:

1. Lack of access to primary and preventative services
2. Limited access to mental health services
3. Limited health literacy and health education opportunities

A detailed report of the impact of the actions taken by SCH to address these health needs can be found in Appendix I.

Soliciting for Public Comments

SCH requested written comments from the public on its 2013 CHNA and most recently adopted implementation strategy through its website.³⁸ At the time of the development of this CHNA report SCH had not received written comments. However, input from the broader community was considered and taken into account when identifying and prioritizing the significant health needs of the community served for the 2016 CHNA, through key informant interviews, focus groups, and more. SCH will continue

³⁷ *Federal Register*, Vol. 79, No. 250, (Wednesday, December 31, 2014). Department of the Treasury, Internal Revenue Service, page 78969.

³⁸ See: <http://www.sutterdelta.org/about/community-need.html>.

to use its website as a tool to solicit for public comments and ensure that these comments are considered community input in the development of future CHNAs.

Limitations

Study limitations included challenges obtaining secondary quantitative data and assuring community representation via primary qualitative data collection. For example, most of the data used in this assessment were not available by race/ethnicity. In addition, data about behavioral issues and conditions like obesity were difficult to obtain at the sub-county level and were not available by race and ethnicity, resulting in the reliance on county data. The timeliness of the data also presented a challenge, as some of the data were collected in different years; however, this is clearly noted in the report to allow for proper comparison.

As always with primary data collection, gaining access to participants that best represent the populations needed for this assessment proved to be a challenge. Measures were taken to reach out to area organizations for recruitment, assuming that the organization represented a geographic area or population group of concern (racially, ethnically, culturally, etc.). Some key informants and organizations that helped with focus groups participated in the 2013 round of data collection, possibly contributing to assessment fatigue. To help with recruitment, focus group participants were offered incentives such as food, refreshments, and gift cards.

Last, the resources identified earlier in this report that are potentially able to address the identified, significant health needs may not be all-inclusive of all resources available in the community. Further, some of these resources may no longer exist or offer the services they did at the time this report was developed. Del Norte First 5 maintains an exhaustive list of resources that can be accessed via the following website: www.co.del-norte.ca.us/news/first5delnorte-localresourceguide. Further, while these resources were identified as a part of this CHNA, no effort was made to identify the capacity of the resource such as the size of its staff, its operating budget, or number of clients it served. Therefore, while many resources exist in the community they may or may not have the capacity to meet the total needs of the community.

Conclusion

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

Appendices

Appendix A: Secondary Data Dictionary and Processing

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

Secondary Indicators

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

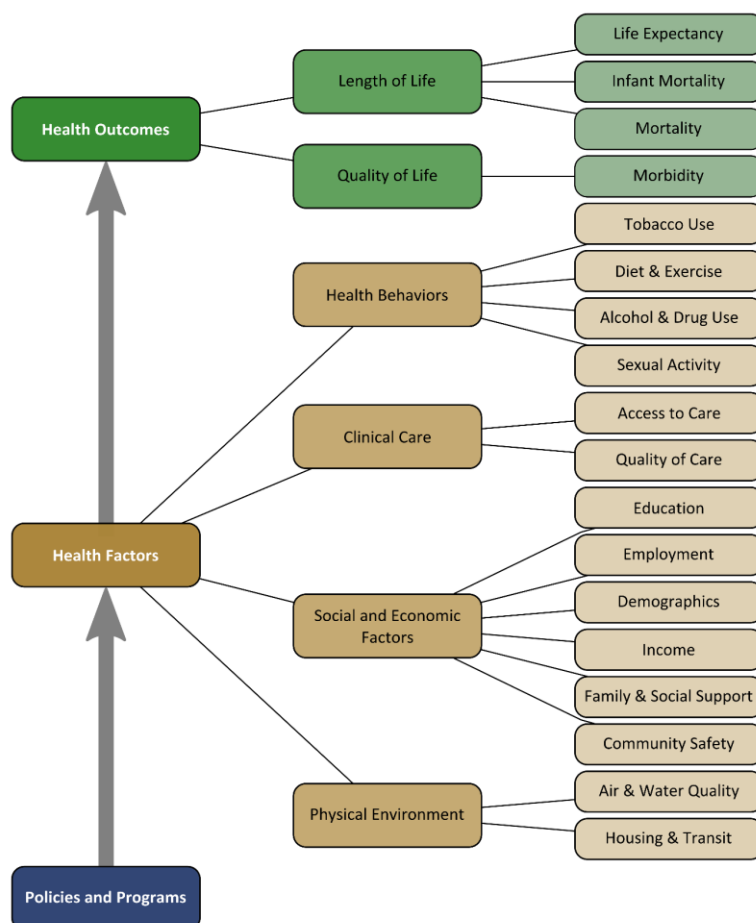


Figure A1: SCH Community Health Assessment Conceptual Model as modified from the County Health Rankings Model, Robert Wood Johnson Foundation, and University of Wisconsin, 2015

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

Main Area	Sub Area	Indicator
Health Outcomes	Length of Life	Infant Mortality Rate
		Child Mortality
		Life Expectancy at Birth
		Age-Adjusted All-Cause Mortality
		Alzheimer's Disease
		Cerebrovascular Disease (Stroke)
		Chronic Liver Disease and Cirrhosis
		Chronic Lower Respiratory Disease
		Diabetes Mellitus
		Diseases of the Heart
		Essential Hypertension & Hypertensive Renal Disease
		Female Mortality Rate
		Influenza and Pneumonia
		Intentional Self Harm (Suicide)
		Male Mortality Rate
		Malignant Neoplasms (Cancer)
		Premature Mortality (Years Potential Life Lost 75)
		Premature Age-Adjusted Mortality
		Nephritis, Nephrotic Syndrome and Nephrosis (Kidney Disease)
		Unintentional Injuries (Accidents)
	Quality of Life/ Morbidity	Breast Cancer
		Colorectal Cancer
		Lung Cancer
		Prostate Cancer
		Diabetes
		Heart Disease
		Hypertension
		Nephritis, Nephrotic Syndrome and Nephrosis (Kidney Disease)
		Stroke
		HIV/AIDS
		Tuberculosis
		Assault
		Self-Inflicted Injury
		Unintentional Injury
		Mental Health
		Asthma
		Chronic Obstructive Pulmonary Disease (COPD)
		Hip Fractures
		Oral Cavity/Dental

Main Area	Sub Area	Indicator
Health Factors		Osteoporosis
		Low Birth Weight
		Total ED Discharge Rate
		Total H Discharge Rate
		Poor or Fair Health
		Poor Physical Health Days
		Poor Mental Health Days
	Health Behavior	Adult Smoking
		Excessive Drinking
		Mental Health, Substance Abuse
		Adult Obesity
		Food Deserts
		Motor Vehicle Crash Deaths
		STIs
		Teen Birth Rate
	Clinical Care	Health Professional Shortage Areas (Primary Care, Dental, Mental Health)
		Population per Primary Care Physician
		Population per Mental Health Provider
		Population per Dentist
		Preventable Hospital Stays
		Uninsured
		Public Insurance
		Uninsured Adults
		Uninsured Children
		Diabetic Monitoring
		Mammography Screening
		Health Care Costs
		Could Not See Doctor Due to Cost
	Social & Economic / Demographics Factors	Percent Asian (Not Hispanic)
		Percent Black (Not Hispanic)
		Percent Hispanic (Any Race)
		Percent American Indian (Not Hispanic)
		Percent Pacific Islander (Not Hispanic)
		Percent White (Not Hispanic)
		Percent Other Race or Two or More Races (Not Hispanic)
		Percent Minority (Hispanic or Non-White)
		Racial/Ethnic Diversity Index
		Population 5 Years or Older Who Speak Limited English
		Population by Age Group: 0-4, 5-14, 15-24, 25-34, 45-54, 55-64, 65-74, 75-84, and 85 and over

Main Area	Sub Area	Indicator
		Population Below 18 Years
		Population 65 Years and Older
		Median Age
		Percent Non-Citizen
		Percent Female
		Percent Foreign-Born
		Percent Male
		Percent Civilian Noninstitutionalized Population with a Disability
		Total Population
		Percent Over 18 Who are Civilian Veterans
		Percent 25 or Older Without a High School Diploma
		High School Graduation Rate
		Some College
		Percent Single Female-Headed Households
		Children in Single-Parent Households
		Inadequate Social Support
		Percent Unemployed
		GINI Coefficient
		Median income
		Percent Families with Children in Poverty
		Children in Poverty
		Percent Households 65 years or Older in Poverty
		Percent Single Female Headed Households in Poverty
		Percent with Public Assistance
		Percent with Income Less Than Federal Poverty Level
		Children Eligible for Free Lunch
		High Housing Costs
		Renters
		Violent Crime
		Homicides
		Rural Population
	Physical Environment	Pollution Burden
		Air Pollution - Particulate Matter
		Drinking Water Violations
		Access to Recreational Facilities
		Access to Parks
		Limited Access to Healthy Foods
		Fast Food Restaurants
		Food Deserts
		Modified Retail Food Environment Index (mRFEI)
		Average Population per Housing Unit

Main Area	Sub Area	Indicator
		Housing Vacancy
		Percent Households with No Vehicle
		Driving Alone to Work
		Commutes Greater than 1 hour

ZIP Code Definitions

A subset of health outcome indicators collected for this analysis within Del Norte County were reported by patient mailing ZIP codes. ZIP codes are defined by the US Postal Service as a single location (such as a PO Box), or a set of roads along which addresses are located. The roads that comprise such a ZIP code may not form contiguous areas, and do not match the approach of the US Census Bureau, which is the main source of population and demographic information in the US. Instead of measuring the population along a collection of roads, the Census reports population figures for distinct, contiguous areas. In an attempt to support the analysis of ZIP code data, the Census Bureau created ZIP Code Tabulation Areas (ZCTAs). ZCTAs are created by identifying the dominant ZIP code for addresses in a given Census block (the smallest unit of Census data available), and then grouping blocks with the same dominant ZIP code into a corresponding ZCTA. The creation of ZCTAs allows us to identify population figures that, in combination with health outcome data reported at the ZIP code level, make it possible to calculate rates for each ZCTA. But the difference in the definition between mailing ZIP codes and ZCTAs has two important implications for analyses of ZIP level data.

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

In order to incorporate these patients into the analysis, the point location (latitude and longitude) of all ZIP codes in the study area³⁹ were compared to ZCTA boundaries⁴⁰. Because various health outcome data sources were available in different years, this comparison was made between the ZCTA boundaries and the point locations of ZIP codes in April of the year (or the central year in the case of indicators aggregated over multiple years) for which the health outcome indicators were reported. All ZIP codes (whether PO Box or unique ZIP code) that were not included in the ZCTA dataset were identified. These ZIP codes were then assigned to either the ZCTA in which they fell, or in the case of rural areas that are not completely covered by ZCTAs, the ZCTA to which they were closest. Health outcome information associated with these PO Box or unique ZIP codes were then added to the ZCTAs to which they were assigned.

For example, 95538 is the PO box for Fort Dick. ZIP Code 95538 is not represented by a ZCTA, but it could have patient data relevant to health outcome indicators. Through the process identified above, it was found that 95538 is located within 95531 (Crescent City), which does have an associated ZCTA. Health outcome data for ZIP codes 95538 and 95531 were therefore assigned to ZCTA 95531, and used to calculate rates. All ZIP code level health outcome indicators given in this report are therefore reporting approximate rates for ZCTAs, but for the sake of familiarity of terms they are presented in the body of the report as ZIP code rates.

³⁹ Datasheer, L.L.C. (2015, April 15). *ZIP Code Database DELUXE BUSINESS*. Retrieved from Zip-Codes.com: <http://www.Zip-Codes.com>

⁴⁰ US Census Bureau. (2015). *TIGER/Line® Shapefiles and TIGER/Line® Files*. Retrieved August 31, 2011, from <http://www.census.gov/geo/maps-data/data/tiger-line.html>

Data Sources

Indicators for this analysis were derived from a variety of sources. The majority of county level indicators for counties in California and Oregon used in the health need identification process were collected from the Robert Wood Johnsons Foundation's County Health Rankings and Roadmaps website. Additional supplemental data were collected at various geographic levels of analysis from federal and state sources. Table A2 below lists the indicators obtained from the 2013 County Health Rankings website⁴¹.

Table A2: Indicators from the 2013 County Health Rankings and Roadmaps Website. All variables sourced from the 2013 report. Variable date reported in source shown in parentheses below.

Premature age-adjusted mortality (2008-2010)	Uninsured children (2010)	Driving alone to work (2007-2011)
Child mortality (2007-2010)	Could not see doctor due to cost (2005-2011)	Air pollution - particulate matter (2008)
Infant mortality (2006-2010)	Uninsured (2010)	Drinking water violations (FY 2012)
Premature death (2008-2010)	Primary care physicians (2010)	Access to recreational facilities (2010)
Diabetes prevalence (2009)	Dentists (2010)	Limited access to healthy foods (2010)
HIV prevalence (2009)	Preventable hospital stays (2010)	Fast food restaurants (2010)
Poor or fair health (2005-2011)	Diabetic monitoring (2010)	Population (2011)
Poor physical health days (2005-2011)	Mammography screening (2010)	Percent below 18 years of age (2011)
Poor mental health days (2005-2011)	Median household income (2011)	Percent 65 and older (2011)
Low birthweight (2004-2010)	High housing costs (2007-2011)	Percent Non-Hispanic African American (2011)
Adult smoking (2005-2011)	Children eligible for free lunch (2011)	Percent American Indian and Alaskan Native (2011)
Adult obesity (2009)	Homicides (2004-2010)	Percent Asian (2011)
Physical inactivity (2009)	High school graduation (2010-2011)	Percent Native Hawaiian/Other Pacific Islander (2011)
Excessive drinking (2005-2011)	Some college (2007-2011)	Percent Hispanic (2011)
Motor vehicle crash deaths (2004-2010)	Unemployment (2011)	Percent Non-Hispanic white (2011)
Sexually transmitted infections (2010)	Children in poverty (2011)	Percent not proficient in English (2007-2011)
Teen births (2004-2010)	Inadequate social support (2005-2010)	Percent Females (2011)
Mental health providers (2010)	Children in single-parent households (2007-2011)	Percent Rural (2010)
Health care costs (2010)	Violent crime (2008-2010)	
Uninsured adults (2010)	Access to parks (2010)	

Multiple socio-economic and demographic variables were collected from the US Census Bureau (Census). For portions of the HSA in Del Norte County, major additional sources included the California Office of Statewide Health

⁴¹ For additional information regarding these variables, including a more detailed description and the years in which the data were collected, please visit <http://www.countyhealthrankings.org/app/california/2013/overview>

Planning and Development (OSHPD), and the California Department of Public Health (CDPH). Additional data for portions of the HSA in Curry County were collected from the Oregon Health Authority (OHA) and additional state sources.

Census data was collected both to provide descriptions of population characteristics for the study area, as well as to calculate rates for health outcome indicators. Table A3 below lists the 2013 population characteristic indicators and sources. Table A4 below lists sources for indicators used to calculate health outcome indicator rates, which were collected for 2012, 2013, and 2014. These demographic indicators were collected variously at the Census blocks and tracts, ZCTA, county, and state levels. In urban areas, Census blocks are roughly equivalent to a city block, and tracts to a neighborhood.

Table A3: Demographic indicators collected from the US Census Bureau⁴²

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

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

Derived Indicator Name	Source Indicator Names	Source
Median Income	Estimate; Median household income in the past 12 months (in 2013 inflation-adjusted dollars)	2013 American Community Survey 5-year Estimate Table B19013
GINI Coefficient	Gini Index	2013 American Community Survey 5-year Estimate Table B19083
Average Population per Housing Unit	Total population in Occupied Housing Units	2013 American Community Survey 5-year Estimate Table B25008
Percent with Income Less Than Federal Poverty Level	Total: - Under .50; Total: - .50 to .99	2013 American Community Survey 5-year Estimate Table C17002
Percent Foreign Born	Total population - Foreign born	2013 American Community Survey 5-year Estimate Table DP02
Percent Non-Citizen	Foreign-born population - Not a U.S. citizen	2013 American Community Survey 5-year Estimate Table DP02
Percent Over 18 Who are Civilian Veterans	VETERAN STATUS - Civilian population 18 years and over - Civilian veterans	2013 American Community Survey 5-year Estimate Table DP02
Percent Civilian Noninstitutionalized Population with a Disability	DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION - Total Civilian Noninstitutionalized Population	2013 American Community Survey 5-year Estimate Table DP02
Percent on Public Assistance	INCOME AND BENEFITS (IN 2013 INFLATION-ADJUSTED DOLLARS) - With cash public assistance income; INCOME AND BENEFITS (IN 2013 INFLATION-ADJUSTED DOLLARS) - With cash public assistance income	2013 American Community Survey 5-year Estimate Table DP03
Percent on Public Insurance	HEALTH INSURANCE COVERAGE - Civilian noninstitutionalized population - With health insurance coverage - With public coverage	2013 American Community Survey 5-year Estimate Table DP03
Percent Renter- Occupied Households	Occupied housing units - Renter-occupied	2013 American Community Survey 5-year Estimate Table DP04
Percent Vacant Housing Units	Total housing units - Vacant housing units	2013 American Community Survey 5-year Estimate Table DP04
Percent Households with No Vehicle	Occupied housing units - No vehicles available	2013 American Community Survey 5-year Estimate Table DP04
Total Population	Total Population	2013 American Community Survey 5-year Estimate Table DP05
Percent Asian (Not Hispanic)	Total Population - Not Hispanic or Latino - Asian alone	2013 American Community Survey 5-year Estimate Table DP05
Percent Black (Not Hispanic)	Total Population - Not Hispanic or Latino - Black or African American alone	2013 American Community Survey 5-year Estimate Table DP05

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

Derived Indicator Name	Source Indicator Names	Source
Percent Single Female-Headed Households in Poverty	Female householder, No Husband Present - Percent Below Poverty Level; Estimate; With Related Children Under 18 years	2013 American Community Survey 5-year Estimate Table S1702
Percent Unemployed	Unemployment rate; Estimate; Population 16 years and over	2013 American Community Survey 5-year Estimate Table S2301
Percent Uninsured	Percent Uninsured; Estimate; Total civilian Noninstitutionalized Population	2013 American Community Survey 5-year Estimate Table S2701

Table A4: Census indicators Used for Health Outcome Rate Calculations^{42,43}

Derived Indicator Name	Source Indicator Names	Source
Total Population	Total Population	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013) 2010 Decennial Census Summary File 1
Female	Female	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Male	Male	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age Under 1	DP05: Under 5 years PCT12: Male and Female, ages under 1, 1, 2, 3, and 4	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013); 2010 Decennial Census Summary File 1 Table PCT12
Age 1 to 4	DP05: Under 5 years PCT12: Male and Female, ages under 1, 1, 2, 3, and 4	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013); 2010 Decennial Census Summary File 1 Table PCT12
Age 5 to 14	5 to 9 years; 10 to 14 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age 15 to 24	15 to 19 years; 20 to 24 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age 25 to 34	25 to 34 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age 35 to 44	35 to 44 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age 45 to 54	45 to 54 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age 55 to 64	55 to 59 years; 60 to 64 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age 65 to 74	65 to 74 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age 75 to 84	75 to 84 years	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)
Age 85 and Over	85 Years And Over	American Community Survey 5-year Estimate Table DP05 (2011, 2012, 2013)

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

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

Additional health outcome data included the number of emergency department (ED) discharges, hospital (H) discharges⁴⁴, and mortalities associated with a number of conditions. Aggregated 2011 – 2013 ED and H discharge data were obtained from the Office of Statewide Health Planning and Development (OSHPD). Table A5 lists the specific indicators collected by ZIP code and county. These values report the total number of ED or H discharges that listed the corresponding ICD9 code as either a primary or any secondary diagnosis, or a principal or other E-code, as the case may be. Because these indicators were collected from a California source, they include only ED and H discharges from California hospitals. Rates calculated for Curry County may therefore represent a significant undercounting of true ED and H discharges. As a result, these variables were interpreted with caution, and were not used to help identify health needs, but rather to provide a supplemental understanding of the variation of health outcomes for just the portion of the HSA falling within Del Norte County.

To address patient privacy concerns, OSHPD applied masking techniques to all their data (both ED and H discharge). Rather than providing data for a single year, data for each condition were totaled for 2011 through 2013 for each ZIP code or county. Additionally, values were not reported for any ZIP code or county where fewer than 11 cases were reported.

Table A5: 2011 – 2013 OSHPD Hospitalization and Emergency Department Discharge Data

Category	Indicator Name	ICD9/E-Codes
Cancer	Breast Cancer	174, 175
	Colorectal Cancer	153, 154
	Lung Cancer	162, 163
	Prostate Cancer	185
Chronic Disease	Diabetes	250

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

Category	Indicator Name	ICD9/E-Codes
	Hypertension	401-405
	Ischemic Heart Disease	410-414
	Chronic Kidney Disease	580-589
	Stroke	430-438
Infectious Disease	HIV/AIDS	042-044
	STIs	042-044, 090-099, 054.1, 079.4
	Tuberculosis	010-018, 137
Injuries ⁴⁵	Assault	E960-E969, E999.1
	Self-Inflicted Injury	E950-E959
	Unintentional Injury	E800-E869, E880-E929
Mental Health	Mental Health	290, 293-298, 301-302, 310-311
	Mental Health: Substance Abuse	291-292, 303-305
Respiratory	Asthma	493
	Chronic Obstructive Pulmonary Disease (COPD)	490-492, 494, 496
Other	Hip Fractures	820
	Oral Cavity/Dental	520-529
	Osteoporosis	733
Overall Discharges	Total Discharges	All Codes

Mortality and birth-related data for each ZIP code within California in 2010, 2011, and 2012 were collected from the California Department of Public Health (CDPH). The specific indicators collected are defined in Table A5. The majority of these indicators were used to calculate specific rates of mortality for 2012. A smaller number of them were used to calculate more complex derived indicators. To increase the stability of these derived indicators, rates were calculated using values for the years 2010 to 2012. These indicators include the total number of live births, total number of infant deaths (ages under 1 year), all-cause mortality by age, births with low infant birth weight, and births with mother's age at delivery under 20. Table A6 consequently also lists the years for which each indicator was collected. County and State level mortality indicators for 2012 (using the same ICD10 code definitions) were also collected for all conditions shown in Table A6 from CDPH for the California portions of the study area, and from Oregon Health Authority (OHA) for the Oregon portions of the study area.

Table A6: CDPH Birth and Mortality Data by ZIP Code

Indicator Name	ICD10 Code	Years Collected
Total Deaths		2012
Male Deaths		2012
Female Deaths		2012
Deaths by Age Group: Under 1, 1-4, 5-14, 15-24, 25-34, 45-54, 55-64, 65-74, 75-84, and 85 and over		2010 - 2012
Diseases of the Heart	I00-I09, I11, I13, I20-I51	2012

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

Indicator Name	ICD10 Code	Years Collected
Malignant Neoplasms (Cancer)	C00-C97	2012
Cerebrovascular Disease (Stroke)	I60-I69	2012
Chronic Lower Respiratory Disease	J40-J47	2012
Alzheimer's Disease	G30	2012
Unintentional Injuries (Accidents)	V01-X59, Y85-Y86	2012
Diabetes Mellitus	E10-E14	2012
Influenza and Pneumonia	J09-J18	2012
Chronic Liver Disease and Cirrhosis	K70, K73-K74	2012
Intentional Self Harm (Suicide)	U03, X60-X84, Y87.0	2012
Essential Hypertension & Hypertensive Renal Disease	I10, I12, I15	2012
Nephritis, Nephrotic Syndrome and Nephrosis	N00-N07, N17-N19, N25-N27	2012
All Other Causes	Residual Codes	2012
Total Births		2010 - 2012
Births with Infant Birthweight Under 1500 Grams, 1500-2499 Grams		2010 - 2012
Births with Mother's Age at Delivery Under 20		2010 - 2012

The remaining secondary indicators were collected from a variety of sources, and at various geographic levels. Table A7 lists the sources of these indicators, and lists the geographic level at which they were reported

Table A7: Remaining Secondary Indicators

Indicator	Year	Definition	Reporting Unit	Data Source
Food Deserts	2010	USDA Defined Food Desert; Low Access 1 mile Urban 10 Mile rural	Tract	USDA http://www.ers.usda.gov/data-products/food-access-research-atlas/download-the-data.aspx (Last Accessed 9 Oct 2015)
Modified Retail Food Environment Index (mRFEI)	2013	Table 00C22 for the following NAICS codes: 445120, 722513, 445230, 452910, 445110	ZCTA	US Census Bureau 2013 County Business Patterns
Health Professional Shortage Areas (Primary Care, Dental, Mental Health)	2015	Current Primary Care, Dental Health, and Mental Health Professional Shortage Areas	Shortage Areas (Non-Point Locations)	US Department of Health & Human Services Health Resources and Services Administration; http://datawarehouse.hrsa.gov/data/data-download/hpsadownload.aspx (last accessed 29 Aug 2015)
Pollution Burden	2014	Cal EnviroScreen Pollution Burden Scores Indicator (based on ozone and PM2.5 concentrations, diesel PM emissions, drinking water contaminants, pesticide use, toxic releases from facilities, traffic density, cleanup sites, impaired water bodies, groundwater threats,	Tract	California Office of Environmental Health Hazard Assessment CalEnviroScreen Version 2.0 http://oehha.ca.gov/ej/ces2.html

Indicator	Year	Definition	Reporting Unit	Data Source
		hazardous waste facilities and generators, and solid waste sites and facilities)		
Cancer Mortality, Breast Cancer Incidence, Colorectal Cancer Incidence, Lung Cancer Incidence, Prostate Cancer Incidence	2009-2013	Age-adjusted All Cancer Site Mortality; Age-Adjusted Cancer Incidence for the Following Cancer Sites: Breast (Female); Colon & Rectum; Lung & Bronchus; Prostate (Male)	County and State	National Cancer Institute State Cancer Profiles; https://statecancerprofiles.cancer.gov/index.html (last accessed 22 Aug 2016)
Asthma (California)	2014	Age-Adjusted Rate per 10,000 of ED Visits Due to Asthma	County and State	California Breathing, California County Asthma Profiles. http://www.californiabreathing.org/asthma-data/county-asthma-profiles/ (last accessed 23 July 2016)
Asthma (Oregon)	2011	Number of Oregonians per 10,000 with one or more asthma ED visit by county (member months and age-standardized), 2011	County and State	Oregon Health Authority, Burden of Asthma in Oregon Report, 2013. Appendix B, Data for Table 7.6. https://public.health.oregon.gov/Diseases/Conditions/ChronicDisease/Asthma/Documents/burden/appxb.pdf (last accessed 23 July 2016)

General Processing Steps

Rate Smoothing

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

The next step in the analysis process was to calculate rates for each of these indicators. However, rather than calculating raw rates, empirical Bayes smoothed rates (EBR) were created for all indicators possible⁴⁶. Smoothed rates are considered preferable to raw rates for two main reasons. First, the small population of many ZCTAs, particularly those in rural areas such as in Del Norte and Curry Counties, 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

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

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.

The EBR procedure was run by comparing ZCTA rates to the overall indicator rate across the entire HSA. As a result, ZCTAs with small populations that may have unstable high rates had their rates “shrunk” to more closely match the overall indicator rate for ZCTAs in the entire HSA. 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 larger population ZIP codes are preserved, and the unstable rates in smaller population ZIP codes are shrunk to more closely match the HSA norm. While this may not entirely resolve the small number problem in all cases, it does make the comparison of the resulting rates more appropriate. Because the rate for each ZCTA is adjusted to some degree by the EBR process, it also has a secondary benefit of better preserving the privacy of patients within the ZCTAs.

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

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

Empirical Bayes smoothing rates were attempted for every OSHPD and ZCTA level CDPH indicator, but may not have been possible to calculate in each case. In these cases, raw rates were used instead. The final rates in either case for H, ED, and the basic mortality indicators were then multiplied by 10,000, so that the final rates represent H or ED discharges, or deaths, per 10,000 people.

Age Adjustment

The additional step of age adjustment⁴⁷ was performed on the all-cause mortality indicator. Because the occurrence of mortality varies as a function of the age of the population, differences in the age structure between ZCTAs could obscure the true nature of the variation in its pattern. For example, it would not be unusual for a ZCTA with an older population to have higher rate mortality than a ZCTA with a younger population. In order to accurately compare the experience of mortality between these two populations, the age profile of the ZCTA needs to be accounted for. Age adjusting the rates allows this to occur.

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

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

made up by that age group as reported in the 2010 Census. The resulting values are then summed and multiplied by 10,000 to create age adjusted rates per 10,000 people.

Benchmark Rates

A final step was to obtain or generate benchmark rates to compare the ZCTA level rates to. Benchmarks for all OSHPD indicators were calculated at county and state levels. County benchmark rates were calculated as raw rates for each county using the relevant population values. State rates were calculated as raw rates by first summing all county level values (treating NA values 0), and then dividing these values by the relevant population value. County and state benchmark rates were also provided for mortality data. These rates were either calculated using OHA or CDPH data reported at the county and state level^{48,49,5051}, or else obtained from the CDPH County Health Status Profiles 2014⁵². The resulting benchmark values for OHA, CDPH and OSHPD indicators were all reported as rates per 100,000 for the HN identification analysis to match rates reported by County Health Rankings and Roadmaps website, and as rates per 10,000 at the ZCTA level, unless the original indicator was reported using some other standard, as described below.

Processing for Specific Indicators

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

Community Health Vulnerability Index (CHVI)

The CHVI is a health care disparity index largely based on the Community Need Index (CNI) developed by Barsi and Roth⁵³. The CHVI uses the same basic set of demographic indicators to address health care disparities as outlined in the CNI, but these indicators are aggregated in a different manner to create the CHVI. For this report, the following nine indicators were obtained from the 2013 American Community Survey 5-year Estimate dataset at the census tract level:

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

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

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

⁵⁰ California Department of Public Health. (2016). *CA-Vital Statistics Query (CA-VSQ)*. Retrieved on July 22, 2016 from http://informaticsportal.cdph.ca.gov/CHSI/VSQS/Death_Age_Result.aspx.

⁵¹ Oregon Health Authority. (2014). *Oregon Vital Statistics Annual Report 2012*. Retrieved June 4, 2016 from <http://public.health.oregon.gov/BirthDeathCertificates/VitalStatistics/annualreports/Volume2/Documents/2012/12v2.pdf>.

⁵² California Department of Public Health. (2015b, July 2). Retrieved from County Health Status Profiles 2014: <http://www.cdph.ca.gov/programs/ohir/Documents/OHIRProfiles2014.pdf>

⁵³ Barsi, E. L., & Roth, R. (2005). The "Community Need Index". *Health Progress*, 86(4), 32-38. Retrieved from <https://www.chausa.org/docs/default-source/health-progress/the-community-need-index-pdf.pdf?sfvrsn=2>

All census tracts that crossed ZCTAs within the HSA were included in the analysis. Each indicator was scaled using a min-max stretch, so that the tract with the maximum value for a given indicator within the study area received a value of 1, and the tract with the minimum value for that same indicator within the study area received a 0. All scaled indicators were then summed to form the final CHVI. Areas with higher CHVI values therefore represent locations with relatively higher concentrations of the target index populations, and are likely experiencing greater health care disparities.

CDPH-Derived Health Outcome Indicators

Infant Mortality Rate

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

Teen Pregnancy Rate

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

Life Expectancy at Birth

Life expectancy at birth values are reported in years, and were derived from period life tables created in the statistical software program R⁵⁴ using the Human Ecology, Evolution, and Health Lab's⁵⁵ 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 pre-calculated, smoothed, age-stratified mortality rates based on mortality reported in given age categories from the years 2010 – 2012.

Years Potential Life Lost (75)

Years Potential Life Lost (75) is a metric that can be used to compare health status across populations that better accounts for premature loss of life than many other metrics⁵⁶. It was calculated here following the method described by Dranger and Remington⁵⁶. In brief, this involved calculating EBR smoothed age stratified death rates using CDPH data from 2010 – 2011. For each age stratification group under 75 years of age, the midpoint age of the group was subtracted from 75, and the resulting value was multiplied by the smoothed age stratified rate. The resulting values for each age stratification were then age-adjusted using a 2010 California base population. These values were then individually multiplied by 10,000 and summed across all age groups to estimate the years of potential life lost before age 75 out of 10,000 people.

⁵⁴ R Development Core Team. (2015). R: A language and environment for statistical computing. Vienna, Austria: .R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, URL <http://www.R-project.org>.

⁵⁵ Human Ecology, Evolution, and Health Lab. (2009, March 2). *Life tables and R programming: Period Life Table Construction*. Retrieved February 16, 2013, from Formal Demography Workshops, 2006 Workshop Labs: <http://www.stanford.edu/group/heeh/cgi-bin/web/node/75>

⁵⁶ Dranger, E., & Remington, P. (2004). YPPL: A Summary Measure of Premature Mortality Used in Measuring the Health of Communities. *Wisconsin Public Health & Health Policy Institute Issue Brief*, 5(7), 1-2. Retrieved May 27, 2015, from <http://uwphi.pophealth.wisc.edu/publications/issue-briefs/issueBriefv05n07.pdf>

Health Factors

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

Diversity Index

The diversity index was calculated to measure the racial and ethnic diversity of geographic regions within the HSA. It was calculated using concepts from Iceland⁵⁷, but using Shannon's evenness index⁵⁸ rather than the specific methodology described by Iceland. The diversity index represents how evenly the population within a given geographic unit is divided between the following seven racial/ethnic groups (described previously): Asian, Black, Hispanic, American Indian, Pacific Islander, White, and Other or Two or More Races. Diversity index values range between 0 and 1, with a value of 0 in areas where the entire population belongs to just one racial/ethnic group and a value of 1 in areas with population evenly divided between the seven groups. Readers interested in the specifics of index calculation are referred to the previously listed sources.

Modified Retail Food Environment Index (mRFEI)

The Modified Retail Food Environment Index (mRFEI) indicator reports the percentage of the total food outlets in a ZCTA that are considered healthy food outlets. Values below 0 are given for ZCTAs with no food outlets. The mRFEI indicator was calculated using a modification of the methods described by the National Center for Chronic Disease Prevention and Health Promotion⁵⁹ using ZIP code-level data obtained from the US Census Bureau's 2013 County Business Pattern datasets. Healthy food retailers were defined based on North American Industrial Classification Codes (NAICS), and included:

- Supermarkets and larger grocery stores: NAICS code 445110, with 10 or more employees
- Fruit and vegetable markets: NAICS 445230
- Warehouse clubs: NAICS 452910

Food retailers that were considered less healthy included:

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

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

⁵⁷ Iceland, J. (2004). *The Multigroup Entropy Index (Also Known as Theil's H or the Information Theory Index)*. US Census Bureau. Retrieved June 20, 2015, from http://www.census.gov/housing/patterns/about/multigroup_entropy.pdf

⁵⁸ Beals, M., Gross, L., & Harrell, S. (2000). *Diversity Indices: Shannon's H and E*. Retrieved June 20, 2015, from University of Tennessee Knoxville, The Institute for Environmental Modeling: <http://www.tiem.utk.edu/~gross/bioed/bealsmodules/shannonDI.html>

⁵⁹ National Center for Chronic Disease Prevention and Health Promotion. (2011). *Census Tract Level State Maps of the Modified Retail Food Environment Index (mRFEI)*. Centers for Disease Control. Retrieved Jan 11, 2016, from http://ftp.cdc.gov/pub/Publications/dnpao/census-tract-level-state-maps-mrfei_TAG508.pdf

Appendix B: Detail Analytic Methodology

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

Overview

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

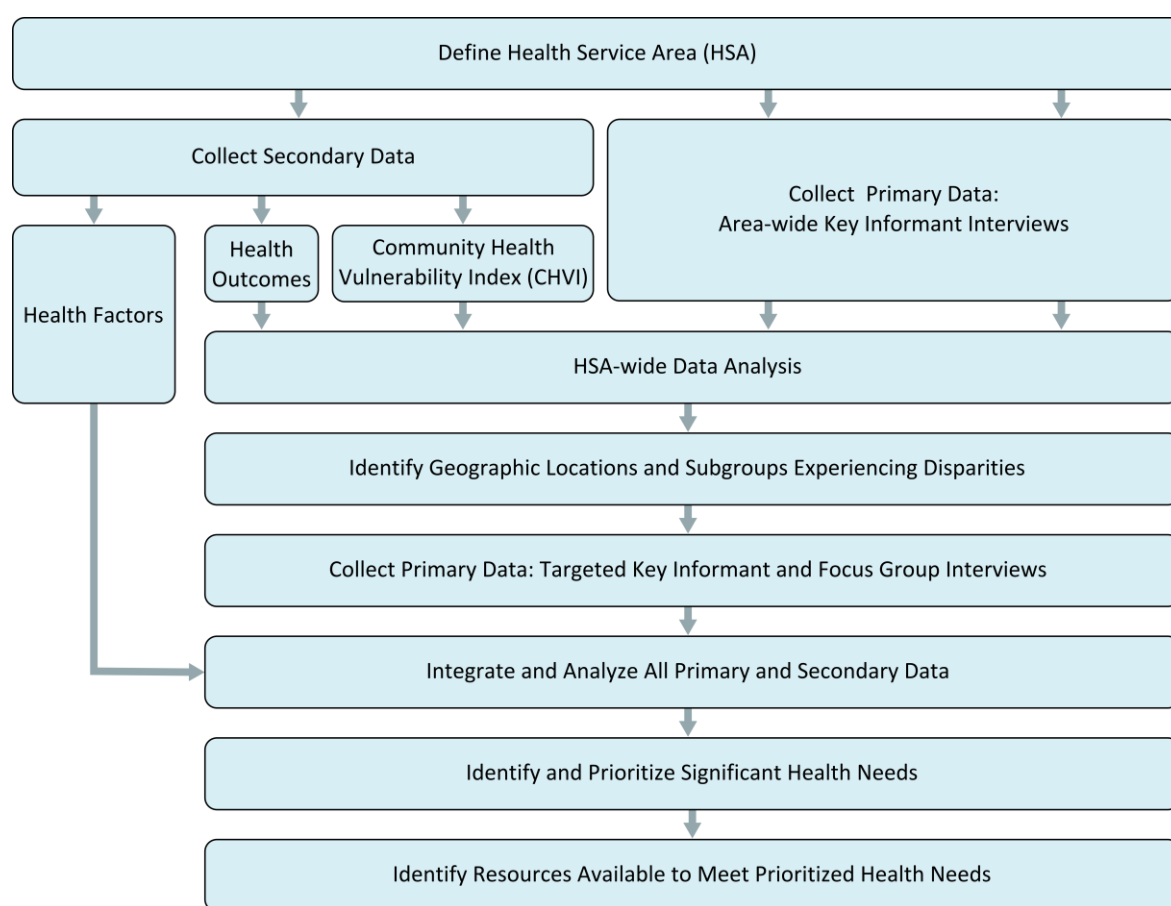


Figure B1: 2016 CHNA process model

Area-wide primary and secondary data were analyzed to identify potential geographic locations or subgroups experiencing disparities within the HSA. The results of this analysis were then used to identify what we refer to as “targeted” key informants and focus groups. These targeted primary data sources were selected based on their ability to speak to the needs of particular geographic locations or subgroups experiencing disparities. Overall primary data and secondary data were then integrated to identify the significant health needs for the HSA. Significant health needs were prioritized based on analysis of the primary data. Finally, resources available within the HSA to address health needs were identified.

Significant Health Need Identification

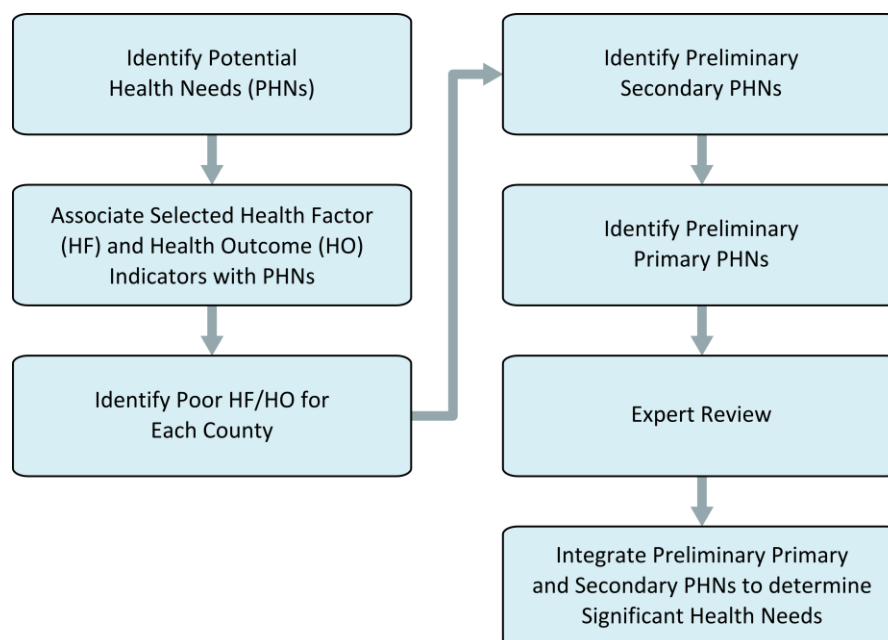


Figure B3: Significant Health Need identification process

The general methods through which significant health needs (SHNs) were identified are shown in Figure B3 above and described here in greater detail. The first step in this process was to identify a set of potential health needs (PHNs) from which significant health needs could be selected. This was done by reviewing the health needs consistently identified in multiple previous CHNAs, and then supplementing this list based on a preliminary analysis of the primary qualitative data collected for the 2016 CHNA. This resulted in a list of 10 PHNs for the HSA, shown in Table B1 below.

Table B1: Potential health needs

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

The next step in the process was to identify primary and secondary indicators associated with each of these health needs as shown in Table B2 below. Primary indicator associations were used to guide coding of the primary qualitative data sources to specific PHNs.

Table B2: Primary and secondary indicators associated with potential health needs

	Health Need	Quantitative Indicators	Qualitative Indicators
PHN1	Access to	• Excessive Drinking	• Self-injury

	Health Need	Quantitative Indicators	Qualitative Indicators
	mental/behavioral/substance abuse services	<ul style="list-style-type: none"> • Health Professional Shortage Area- Mental Health • Population per Mental Health Provider • Poor Mental Health Days • Inadequate Social Support 	<ul style="list-style-type: none"> • Mental health and coping issues • Substance abuse • Smoking • Stress • Mentally ill homeless • PTSD
PHN 2	Access to quality primary care health services	<ul style="list-style-type: none"> • Breast Cancer Incidence • Cancer Mortality • Colorectal Cancer Incidence • Could Not See Doctor Due to Cost • Diabetes Prevalence • Health Care Costs • Health Professional Shortage Area – Primary Care • Heart Disease Mortality • Hypertension Mortality • Low Birth weight • Lung Cancer Incidence • Mammography Screening • Nephritis, Nephrotic Syndrome and Nephrosis Mortality • Prostate Cancer Incidence • Preventable Hospital Stays • Population per Primary Care Physician • Stroke Mortality • Uninsured 	<ul style="list-style-type: none"> • Quality of care • Access to care • Health insurance • Care for cancer/cancer occurrence • Indicators in PQI: diabetes, COPD, CRLD, HTN, HTD, asthma, pneumonia
PHN 3	Access to affordable, healthy food	<ul style="list-style-type: none"> • Breast Cancer Incidence • Cancer Mortality • Colorectal Cancer Incidence • Diabetes Prevalence • Limited Access to Healthy Foods • Heart Disease Mortality • Hypertension Mortality • Lung Cancer Incidence • mRFEI • Nephritis, Nephrotic Syndrome and Nephrosis Mortality • Prostate Cancer Incidence • Stroke Mortality 	<ul style="list-style-type: none"> • Food access/insecurity • Community gardens • Fresh fruits and veggies • Distance to grocery stores • Food swamps • Chronic disease outcomes related to poor eating • Diabetes, HTD, HTN, stroke, kidney issues, cancer
PHN 4	Safe and violence-free environment	<ul style="list-style-type: none"> • Homicide Rate • Motor Vehicle Crash Death Rate • Access to Parks • Physical Inactivity • Poor Mental Health Days • Access to Recreational Facilities • Violent Crime Rate 	<ul style="list-style-type: none"> • Crime rates • Violence in the community • Feeling unsafe in the community • Substance abuse: alcohol and drugs

	Health Need	Quantitative Indicators	Qualitative Indicators
			<ul style="list-style-type: none"> • Access to safe parks • Pedestrian safety • Safe streets • Safe places to be active
PHN 5	Access to dental care and preventive services	<ul style="list-style-type: none"> • Health Professional Shortage Area - Dental • Population Per Dentist 	<ul style="list-style-type: none"> • Any issues related to dental health • Access to dental care
PHN 6	Pollution-free living environment	<ul style="list-style-type: none"> • Air Pollution – Particulate Matter • Adult Smoking • Breast Cancer Incidence • Cancer Mortality • Colorectal Cancer Incidence • Drinking Water Violations • Age Adjusted ED Asthma Visits • Lung Cancer Incidence • Prostate Cancer Incidence 	<ul style="list-style-type: none"> • Smoking • Unhealthy air, water, housing, • Health issues: asthma, COPD, CLRD, lung cancer
PHN 7	Access to basic needs, such as food, housing, jobs	<ul style="list-style-type: none"> • Children Eligible for Free and Reduced Lunch • Children in Poverty • Child Mortality • Some College • Could Not See Doctor Due to Cost • Children in Single-Parent Households • Health Care Costs • High Housing Costs • High School Graduation • Infant Mortality • Low Birthweight • Median Household Income • Households with No Vehicle • Premature Age-Adjusted Mortality • Average Persons per Housing Unit • Inadequate Social Support • Unemployment • Uninsured • Premature Death (Years of Potential Life Lost) 	<ul style="list-style-type: none"> • Employment and unemployment • Poverty • Housing issues • Homelessness • Education access • Community quality of life
PHN 8	Access to transportation and mobility	<ul style="list-style-type: none"> • Households with No Vehicle 	<ul style="list-style-type: none"> • Physical access issues • Cost of transportation • Ease of transportation access • No car
PHN 9	Access to specialty care	<ul style="list-style-type: none"> • Diabetes Prevalence 	<ul style="list-style-type: none"> • Seeing a specialist for

	Health Need	Quantitative Indicators	Qualitative Indicators
		<ul style="list-style-type: none"> Heart Disease Mortality Hypertension Mortality Nephritis, Nephrotic Syndrome and Nephrosis Mortality Preventable Hospital Stays Stroke Mortality 	health conditions <ul style="list-style-type: none"> Diabetes related specialty care Specialty care for: HTD, HTN, stroke, kidney diseases
PHN 10	Health education and health literacy	<ul style="list-style-type: none"> Adult Smoking Diabetes Prevalence Excessive Drinking HIV Prevalence Rate Heart Disease Mortality Hypertension Mortality Low Birthweight Motor Vehicle Crash Death Rate Nephritis, Nephrotic Syndrome and Nephrosis Mortality Adult Obesity Physical Inactivity Sexually Transmitted Infections Stroke Mortality Teen Birth Rate Unintentional Injury Deaths 	<ul style="list-style-type: none"> Factors related to preventing disease or injury Unintentional injury Smoking and alcohol/drug abuse Teen pregnancy HIV/STD TB Influenza and Pneumonia Health classes Health promotion teams and interventions Need for health literacy

Next, values for the secondary health factor and health outcome indicators identified above in each county were compared to their respective state benchmarks to determine if a given secondary indicator was problematic in the given county. While the majority of variables used for the PHN analysis were calculated at the county level, a few were not, meaning that alternative approaches were needed in order to identify if these indicators were problematic. Health Provider Shortage Area (HPSA) indicators, as well as Food Deserts, were considered problematic if any part of the HSA fell within the respective HPSA or Food Desert. The mRFEI variable was considered problematic only if the HSA included a ZCTA whose mRFEI value fell below the median mRFEI value for all California ZCTAs.

The majority of those indicators that could be compared to a state benchmark were considered problematic if they exceeded the benchmark. The following indicators, however, were considered problematic only if they fell below the relevant state benchmark: Some College, High School Graduation, Median Household Income, Access to Parks, Mammography Screening, and Diabetic Monitoring.

Two standards were then developed to determine whether an indicator would be considered as performing poorly across the HSA as a whole: either the indicator was found to have problematic values in one county, or the indicator was found to have problematic values in both counties. Once identified using one of these two standards, poorly performing indicators were used to determine which PHNs were considered significant. While all PHNs represent actual health needs within the HSA to a greater or lesser extent, a PHN could be considered a Preliminary Secondary Health Need based on one of four criteria: if there were any poorly performing associated HF/HO indicator; if at least 50% of the associated HF/HO indicators were found to perform poorly; if at least 66% of the associated HF/HO indicators were found to perform poorly; or if at least 75% of the associated HF/HO indicators were found to perform poorly.

A similar set of standards were used to identify the Preliminary Primary Health Needs: at least 50% of the primary data sources mentioned a given PHN; at least 66% of primary data sources mentioned a given PHN; at least 70%

of primary data sources mentioned a given PHN; or, at least 75% of primary data sources mentioned a given PHN. Allowances were also made for the possibility of a previously unrecognized health need to emerge through qualitative primary data collection. If a health need that did not fit within the previously identified PHNs was found, it was added to the list, and primary data sources were coded to count the percentage of sources mentioning that emergent health need.

These sets of criteria (any mention, 50%, 66%, 75%, etc.) were developed for both the primary and secondary analysis because we could not anticipate which specific standard would be most meaningful within the context of the HSA. Having multiple objective decision criteria allows the process to be more easily described, but still allows for enough flexibility to respond to evolving conditions in the HSA. To this end, a final round of expert review was used to compare the set of primary and secondary SHN selection criteria to find the level at which the criteria converged towards a final set of SHNs. Once the final criteria used to identify the SHN were selected for both primary and secondary analyses, any PHN included in either the Preliminary Primary or Secondary PHN list was included as a final Significant Health Need for the HSA.

For this report, any indicator above the benchmark in at least one of the counties was identified as poor performing. A PHN was selected as a Preliminary Secondary Significant Health need only if 50 percent of the associated indicators were identified as performing poorly. A PHN was identified as a Preliminary Primary Significant Health Needs only if it was mentioned by 70% or more of the sources as performing poorly. Finally, additional PHNs were adjusted based on further expert review of the combined primary and secondary data.

Significant Health Need Prioritization

Once identified for the HSA, the final set of SHNs could be prioritized. To reflect the voice of the community, SHNs were prioritized using an analysis of the primary qualitative data, based on two approaches to quantifying the primary data: the percent of all primary data sources that referenced the SHN, and the average number of times the SHN was referenced across all data sources. These measures were developed for each SHN using NVIVO 11 Qualitative Analytical Software.

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

Resource Identification Process

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

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

Appendix C: Informed Consent

Purpose

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

Procedures

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

Potential Risks or Benefits

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

Participants' Rights

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

Confidentiality

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

How to Obtain Additional Information

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

Participant Print and Sign

Date

Interviewer Print and Sign

Date

Appendix D: Key Informant and Focus Group Interview Guide

2016 CHNA Key Informant Interview Guide Sutter Coast Hospital

Objective: gain a clear description of the community served (geographic, socio-economic, race/ethnicity, ideology, any other unique attributes about the community)

1. Please tell me about your current role and the organization you work for.
2. How would you define the community(ies) you serve?
 - a. How do locals describe and talk about these communities (census designated communities include: Bertsch-Oceanview, Crescent City, Gasquet, Harbor, Hiouchi, Klamath, Smith River, and Brookings, OR)
 - b. Specific geographic areas?
 - c. Specific populations served?
 - d. Who? Where? Racial/ethnic make-up, physical environment (urban/ rural, large/small)

Objective: gain a clear understanding of the health status of the community

3. Describe the health of the community you serve.
 - a. What are the specific health-issues the community struggles with the most?
 - b. What specific locations struggle with health issues the most?
 - c. What specific groups in the community experience health issues the most?
 - d. Which would you say are the most important or urgent health issues to address?

Objective: gain a clear understanding of the challenges community members face when trying to maintain or improve their health, as well as those things that contribute to these challenges

4. What are the challenges to being healthy for the community?
 - a. What health care services are most needed by the community in order to maintain or improve health?
 - i. Access to primary healthcare
 - ii. Access to specialty care
 - iii. Hospital capacity to deliver services
 - b. Built environment
 - c. Food access
 - d. Social stressors
 - e. Other
5. What is contributing to the challenges you described in question 3?

Objective: identify resources within the community to potentially address health needs identified

6. What resources exist in the community to help people live healthy lives?
 - a. What are the barriers to accessing these resources?

Objective: gain an understanding of the impact of the ACA on the community served

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

Objective: identify and rank the requisites to improve the health of the community

8. What is needed to improve the health of your community?
 - a. Policies?
 - b. Care coordination?
 - c. Access to care?
 - d. Environmental change?
9. Of those items you listed in question 6 above, which would you say is the most significant improvement needed? Which is second most significant? Third? And so on?

Objective: identify other key informants and gather other information not addressed in questions above

10. What other people, groups or organizations would you recommend we speak to about the health of the community?
 - a. Exact names or people and organizations
 - b. Special populations mentioned
11. Is there anything else you would like to share with our team about the health of your community?

2016 CHNA Focus Group Interview Guide
Sutter Coast Hospital

Objective: gain a clear understanding of the health status of the community

1. Describe the health of the community you live in.
 - a. What are the specific health-issues the community struggles with the most?
 - b. What specific locations seem to struggle with health issues the most?
 - c. What specific groups in the community experience health issues the most?
 - d. Which would you say are the most important or urgent health issues to address?

Objective: gain a clear understanding of the challenges community members face when trying to maintain or improve their health, as well as those things that contribute to these challenges

2. What are the challenges to being healthy for you, your family, and community?
 - a. What health care services are most needed by the community in order to maintain or improve health?
 - i. Access to primary healthcare
 - ii. Access to specialty care
 - iii. Hospital capacity to deliver services (probe for issue of transfers as appropriate)
 - b. Built environment
 - c. Food access
 - d. Social stressors
 - e. Other
3. What is contributing to the challenges you described in question 3?

Objective: identify resources within the community to potentially address health needs identified

4. What resources are you aware of that exist in the community to help people live healthy lives?
 - a. What are the barriers to accessing these resources?

Objective: gain an understanding of the impact of the ACA on the community served

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

Objective: identify and rank the requisites to improve the health of the community

6. What is needed to improve the health of your community?
 - a. Policies?
 - b. Care coordination?
 - c. Access to care?
 - d. Environmental change?
7. Of those items you listed in question 6 above, which would you say is the most significant improvement needed? Which is second most significant? Third? And so on?
8. Is there anything else you would like to share with our team about the health of your community?

Appendix E: Project Summary Sheet

Sutter Coast Hospital 2016 Community Health Needs Assessment

Project Overview and Description



Project Overview

Following both state and federal mandates, nonprofit hospitals conduct community health needs assessments (CHNA) every three years. These assessments identify and prioritize the significant health needs of the communities they serve. Based on the results nonprofit hospitals develop community health improvement or implementation plans to address particular, significant health needs.

Sutter Coast Hospital has contracted with Community Health Insights (www.communityhealthinsights.com) to conduct its CHNA. Community Health Insights is a Sacramento based research-oriented consulting firm dedicated to improving the health and well being of communities across Northern California.

Project Objective

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

Project Deliverables

The final deliverable of this project will be a written report detailing the CHNA of the Sutter Coast Hospital service area. The report will be posted on the hospital's website. Comments by community members on the content of the CHNA are welcomed by the hospital.

Project Timeline

The CHNA will start in March 2016 and be completed by July 2016.

Project Contact

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

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



Appendix F: List of Key Informants

Organization	Area of Expertise	Populations Served
California Center for Rural Policy, Humboldt State University	Rural health and health research	All residents of Del Norte County
Del Norte Community Health Center	Community health services delivery including primary care, dental and behavioral health	All residents of Del Norte County
Del Norte County Department of Health and Human Services	Community health, public health, and health policy	All residents of Del Norte County
Curry Community Health	Community health and health services delivery, including primary care, dental, and behavioral health	All resident of Curry County, OR
Harrington House Women's Shelter	Domestic violence	Community residents suffering from domestic violence and abuse
Del Norte Health Care District	Community healthcare, community health, mental and behavioral health	All residents of Del Norte County
United Indian Health Services, Crescent City	Community health services delivery to Native American populations	Native American populations residing in Del Norte County
Sutter Coast Clinics	Community health services delivery—primary care	All residents of Del Norte County
Sutter Coast Hospital	Community health services delivery—hospital care	All residents of Del Norte County
Rural Human Services	Community health, youth career development	The youth of Del Norte County
Our Daily Bread Ministries	Homeless populations	Homeless populations residing in Crescent City
First 5 Del Norte	Children's community health, early childhood development	All residents of Del Norte County
Building Healthy Communities, Del Norte and Adjacent Tribal Lands	Community health, health policy	All residents of Del Norte County with a focus on underserved populations
Curry County Sheriff's Office	Community law enforcement	All residents of Curry County, OR
Del Norte County Government	County government	All residents of Del Norte County

Appendix G: List of Focus Groups

Location or Group Name	Number of Participants	Demographic Information
Community Food Council	5	Community food/health professionals and volunteers; all female adults; all Caucasian with one API
Diabetes Support Group	11	Male, female Caucasian, age range 30-50, attending support group
Foster Parent Group	11	Male, female volunteers all supporting foster care; all older adults (40's and older)
Our Daily Bread Ministries	15	Male, female, Caucasian; homeless individuals; variety of ages
Health Careers Pathways Group	12	Young adults; current high school students and several recent graduates. Male and female; Caucasian, API, Native American
Gold Beach Resident Focus Group, Gold Beach, OR	16	2 male, 14 female; age range 20's to 50's
Brookings Resident Focus Group, Brookings, OR	20	17 female, 3 male; 1 API female, all others Caucasian; age range from 30's to 70's
Sutter Coast Hospital Employees (held at SCH)	9	Female employees of Sutter Coast Hospital, all Caucasian, ages ranged from 20's to 60's

Appendix H: Resources Potentially Available to Meet Significant Health Needs

Organization Information			Potential Health Need Met (X)									
Name	Zip Code	Website	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Health Education and Health Literacy
Birth and Beyond Class (Sutter Coast Hospital)	95531	www.suttercoast.org/healthinformation/birth-and-beyond.html										X
Children's Health Collaborative	95531	www.facebook.com/Childrens-Health-Collaborative-of-Del-Norte-County-146126878781989/										X
Coastal Connections	95531	www.co.del-norte.ca.us/departments/health-human-services/social-services-branch/coastal-connections							X			x
Community Assistance Network	95531	www.canbless.org/							X			
County of Del Norte Child Welfare Services	95531	www.co.del-norte.ca.us/departments/health-human-services/social-services-branch/child-welfare-services-cws				X						
County of Del Norte Veterans Services	95531	www.co.del-norte.ca.us/departments/veterans-services	X	X	X		X		X			
Del Norte and Adjacent Tribal Lands Building Healthy Communities Initiative	95531	www.calendow.org/places/del-norte-and-adjacent-tribal-land/	X	X	X	X	X		X			X
Del Norte Childcare Council	95531	www.dnccc.com/				X			X			X
Del Norte Community Health Center	95531	http://opendoorhealth.com/opendoor/?page_id=419	X	X			X					
Del Norte Community Wellness Center and Garden	95531	www.opendoorhealth.com/opendoor/?page_id=3867							X			
Del Norte County Alcohol and other Drug Services	95531	www.co.del-norte.ca.us/departments/health-human-services/public-health/public-health-programs/preventionprograms										X
Del Norte County Mental Health Branch (division of HHS)	95531	www.co.del-norte.ca.us/departments/health-human-services/mental-health-branch	X									
Del Norte County Public Health Branch (division of HHS)	95531	www.co.del-norte.ca.us/departments/health-human-services/public-health										
Del Norte Family Resource Center of the Redwoods	95531	www.frcdredwoods.org/							X			X
Del Norte Mobile Dental Van	95531	www.opendoorhealth.com/opendoor/?page_id=900					X					

Organization Information			Potential Health Need Met (X)									
Name	Zip Code	Website	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Health Education and Health Literacy
Del Norte Senior Center	95531	www.delnorteseniorcenter.org/senior-services.html							X			1
First 5 Del Norte	95531	www.delnortekids.org/	X	X	X	X	X	X	X	X	X	X
Harrington House Shelter	95531	www.ruralhumanservices.org/harrington-house/				X						
Our Daily Bread Ministries	95531	www.dailybreadcc.org							X			
Rural Human Services	95531	www.ruralhumanservices.org/				X			X			X
Rural Human Services, Supportive Living Services	95531	www.ruralhumanservices.org/supported-living-services/							X			X
Sutter Coast Health Center	95531	www.suttercoast.org/locations/health-center/		X								
Sutter Coast Hospital	95531	www.suttercoast.org/	X	X							X	X
Sutter Coast Community Clinic	95531	www.suttercoast.org/locations/community-clinic/		X								
Wild Rivers Community Foundation	95531	www.hafoundation.org/Affiliates-Region/Wild-Rivers-Community-Foundation	X	X	X				X			X
Yurok Food Distribution Program	95531	www.yuroktribe.org/departments/socialservices/fdp.htm							X			
North Coast Rape Crisis Team	95531	www.ncrct.org/				X						
Humboldt Addiction Services Program (HASP)	95531	http://citehealth.com/rehab-centers/california/cities/crescent-city/humboldt-addictions-services-programs-hasp	X									
Court Appointed Special Advocates (CASA)	95531	www.casasn.org/				X						
Del Norte County Social Services Branch (division of HHS)	95531	www.co.del-norte.ca.us/departments/health-human-services/social-services-branch				X			X			
Adult and Family Counseling Center	95531	www.manta.com/c/mmglqp/adult-family-counseling-center	X									
The Pregnancy Care Center of Crescent City	95531	www.freewomensclinic.com/abortion/pregnancy-care-center-crescent-city/										X
Del Norte County Health & Human Services Public Assistance	95531	www.co.del-norte.ca.us/departments/health-human-services							X			
Del Norte Ambulance/Custom Air Service	95531	www.delnorteambulance.com/	X	X						X		

Organization Information			Potential Health Need Met (X)									
Name	Zip Code	Website	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Health Education and Health Literacy
Crescent City Housing Authority	95531	www.crescentcity.org							X			
Habitat for Humanity	95531	www.habitat.org/cd/kit/homepage.aspx?page=del-norte-habitat							X			
Health Insurance Counseling & Advocacy Program	95531	www.needymeds.org/local_programs.taf?_function=detail&local_pid=2976	X	X			X				X	
Yurok Tribal programs: TANF	95548	www.yuroktribe.org/departments/socialservices/socialservicestanf1.htm							X			
Howonquet Early Learning Program	95567	www.tolowa-nsn.gov/tribal-enterprises/howonquet-day-care/										X
Smith River Methodist Church	95567	www.cnumc.org/ministries	X						X			
Smith River Howonquet Senior Nutrition Program	95567	www.tolowa-nsn.gov/							X			
Brookings Harbor Medical Center	97415	http://bhmc-oak.com/		X								
Brookings Presbyterian Church	97415	www.brookingspres.com/										
Brookings Psychiatry	97415		X									
Brookings Seventh Day Adventist	97415	www.brookingsdda.org/							X			
Brookings/Harbor Food Bank	97415	http://brookingsharborfoodbank.org/										
Chetco Activity Center	97415	www.chetcoac.org/home.html							X			X
Chetco Medical Center	97415	www.chetcomedical.com/#comprehensive-care										
Curry Medical Center	97415	www.curryhealthnetwork.com/getpage.php?name=curry-medical-center		X							X	
Curry Public Transit Dial a Ride	97415	www.currypublictransit.org								X		
Outreach Gospel Clinic	97415	www.bogm.org/							X			
St. Timothy's Episcopal Church	97415	www.sttimothyepiscopal.org/							X			
Star of the Sea Catholic Church	97415	www.starofthesea-catholicchurch.org/home.html							X			
Sutter Coast Health Center at Brookings-Harbor	97415	www.suttercoast.org/locations/brookings-harbor/		X								
Trinity Lutheran Church	97415	www.brookingslutheran.org/outreach.html							X			
Cal-Ore Life Flight	97415	www.cal-ore.com									X	

Organization Information			Potential Health Need Met (X)									
Name	Zip Code	Website	1. Access to mental/behavioral/substance abuse services	2. Access to quality primary care health services	3. Access to affordable, healthy food	4. Safe and violent free environment	5. Access to dental care and preventive services	6. Pollution-free living environment	7. Access to basic needs, such as food, housing, jobs	8. Access to transportation and mobility	9. Access to specialty care	10. Health Education and Health Literacy
Curry Health Foundation: Ready to Smile	97444	www.curryhealthfoundation.com	X	X			X				X	X
Rural Human Service Food Bank	Multiple locations	www.ruralhumanservices.org/food-and-family-programs/										
United Indian Health Services	Throughout Del Norte County	www.unitedindianhealthservices.org/	X	X			X					X
Child Abuse Hotline		www.childhelpuse.org				X						
Totals			15	15	4	10	8	1	27	3	6	18

Appendix I: Impact of Actions Taken Since Previously Conducted CHNA

Health Need Identified in the 2013 CHNA that Sutter Coast Selected to Address (Taken from the 2013-2015 Implementation Strategy)	Actions Taken to address Identified Health Need	Impact of these Actions
Lack of Access to Primary and Preventative Services	Access to primary and preventative services is a direct function of physician and mid-level practitioner availability in the community. Actions taken are enumerated in the subsequent sections.	The medical center's catchment population is roughly 40,000. Access to same day care and scheduled providers increased.
	Some physicians come to our community on their own.	Thirty-seven physicians or mid-levels were added to the Medical Staff. These are primary care or mid-level practitioners and some providers who support the primary care providers as the primary care providers assures their patients have access to specialty care. Thirteen physicians or mid-level practitioners left the medical staff and community. As a result the number of medical staff members increased by twenty-four physicians or mid-levels.
	Some providers come as a result of targeted recruitment efforts. In an effort to recruit physicians, the number of recruiting firms which the institution worked with was increased. As a result 46 physicians were interviewed during 2015.	No targeted recruits joined the medical staff in 2015. Seven physicians joined the medical staff in 2016. These seven physicians initial contact occurred in 2015. Time associated with obtaining a California State license to practice medicine, takes on average about eight to ten months.
	Some providers come as a result of a joint recruitment effort. These joint efforts included California Endowment, Del Norte Health Care District, Open Door Community Clinic, and the National Health Service Corporation.	A \$250K fund was created to aid in the recruitment efforts. No physicians came to the community as a direct result of the joint recruitment efforts. Most of the monies were returned to the funding institutions.
	Continued the operation of several ambulatory clinics with negative operating margins. In 2015, the medical center committed \$1.7 million to supporting the ambulatory clinics with negative operating margins.	The community did not experience a decrease in access to primary care and some specialty care.
	Other barriers to access include lack of transportation, insurance coverage, and assistance with navigating the societal safety net social services. These services are often called	In 2014, \$90K was spent on Health Care Support Services. In 2015, \$71K was spent on Health Care Support Services. Patients were paired with Social Workers, received

Health Need Identified in the 2013 CHNA that Sutter Coast Selected to Address (Taken from the 2013-2015 Implementation Strategy)	Actions Taken to address Identified Health Need	Impact of these Actions
	<p>Health Care Support Services.</p>	<p>health care insurance enrollment assistance, and patients received assistance in being transported to medical care.</p>
	<p>Ensure the primary care physicians have “tools” which facilitate the provision of accessible, coordinated, and cost effective care.</p>	<p>In 2015, the Board approved the acquisition and installation of a \$20 million electronic health record system. The goal was to have the system fully operational in the Spring of 2016. Preparations started in 2015. With the new system, providers can electronically view a patient’s medical record across the various delivery sites and patients can view an abstract of their medical records electronically.</p>
		<p>In 2015, committed to increasing access to imaging studies by opening an outpatient-imaging center that is located roughly 30 miles from the hospital. Initial constructed started in the 4th quarter 2015.</p>
<p>Limited Access to Mental Health Services</p>	<p>An effort was undertaken to form a partnership with multiple agencies that we thought might have a strong interest in increasing access to psychiatric services. The initial effort focused on recruiting a psychiatrist plus examining telemedicine.</p>	<p>Due to change in community leaders and very restricted community funds, this effort was not successful. According to ED Staff, the ED has experienced a significant increase in the number of patients requiring mental health services presenting to the ED in a crisis. A special task force has been created, Psychiatric Emergency Stabilization Task Force. This is a multi-agency task force. To soon to tell if this body will have the intended impact.</p>
<p>Limited Health Literacy and Health Education Opportunities</p>	<p>Sutter Coast Hospital offered a variety of health education programs: diabetes education & support group, teen pregnancy, breast feeding, teen pregnancy prevention, weight management, childbirth/prenatal education, community health education, and childhood development. The initial plan called for educational efforts relative to access to dental care, basic needs, and safe & affordable places to exercise. Addressing the later was phased out.</p>	<p>Over the course of 2014 and 2015, several classes were offered. On an annual basis, courses offered includes: fifty prenatal courses, 12 diabetes courses (aka: Diabetes Basics) with each class being 4 hours in duration, teen pregnancy courses, 4 weight management courses (aka: Healthy Choices for Healthy Eating) with each class being two hours in duration, and childhood development courses. In 2014, roughly \$77K was spent. In 2015, an additional \$30K was spent.</p>