Solano County Health & Social Services Department
Public Health Division
Maternal Child & Adolescent Health Bureau

Maternal Child & Adolescent Health

Five Year Needs Assessment 2020-2024

JULY 2020

GERALD HUBER
Director
grhuber@solanocounty.com
(707) 784-8400

DEBBIE VAUGHN
Assistant Director
dlvaughn@solanocounty.com
(707) 784-8401

BELA T. MATYAS, MD, MPH
Deputy Director/Health Officer
btmatyas@solanocounty.com
(707) 784-8600

275 Beck Avenue, MS 5-240
Fairfield, CA 94533
(707) 784-8600
Fax (707) 784-6618

www.solanocounty.com

DEPARTMENT OF HEALTH & SOCIAL SERVICES
Public Health Services Division

SOLANO COUNTY

SOLANO PUBLIC HEALTH

July 1, 2020

The Maternal, Child and Adolescent Health Bureau would like to share with you our 2020-2024 Needs Assessment.

Every five years the Solano County Maternal, Child and Adolescent Health Bureau (MCAH), conducts a needs assessment. The assessment looks at important maternal, child, and adolescent health indicators for the community and our progress in impacting those areas over time. Our assessment, which was submitted to the California State MCAH, examines our strengths and assets as well as gaps and needs related to providing public health services to the communities we serve.

The process of conducting the needs assessment was completed by an internal Technical Advisory Group with the assistance and input of many community partners and stakeholders. Multiple meetings were held to solicit input from stakeholders and participants in the Maternal, Child and Adolescent Health system. We are tremendously appreciative of the time and energy contributed by so many of our community partners to this process.

The data on which this document is based comes from many sources, including the California Department of Public Health, the Solano County Automated Vital Statistics System, the California Center for Health Statistics, the California Department of Education, the Office of Statewide Health Planning and Development, the Centers for Disease Control and Prevention Pediatric Nutrition Surveillance System, the UCLA Center for Health Policy Research and the California Center for Public Health Advocacy. If you have any questions about the information here or would like to review the data in more detail, feel free to contact Susan Whalen at the MCAH Bureau at swhalen@solanocounty.com.

Please join us in sharing this document with others who are interested in promoting optimal health for women, children, and adolescents in Solano County.

Sincerely,

Bela T. Matyas

Bela Matyas, MD, MPH
Health Officer

Cc: Jan Babb, RN, MSN, PNP
Maternal, Child and Adolescent Health Director

Table of Contents

For further information about this report or additional data, please contact:

Maternal, Child and Adolescent Health Bureau
Solano County Public Health
275 Beck Ave, Fairfield, CA 94533
Phone: (707) 784-8600

Jan Babb, MCAH Director, JLBabb@SolanoCounty.com
Susan Whalen, MCAH Senior Health Education Specialist, SWhalen@SolanoCounty.com
Kristine Lalic, MCAH Health Education Specialist, KJLalic@SolanoCounty.com

Special thanks to the Family Health Outcomes Project at University of California San Francisco; Sara Naramore, Solano County Epidemiologist; Dr. Shandi Fuller, Deputy Health Officer; Anquanitte Ortega, Senior Health Education Specialist; Penny Paxton, MPH, Health Education Specialist; and Justin Nguyen and Valentina Kelly, MPH(c), MCAH Interns for assistance in preparing this report.

We extend our gratitude to the MCAH Internal Advisory Board members for their significant contributions during the preparation, implementation, evaluation, and next steps of our Needs Assessment.

We also acknowledge the numerous stakeholders and key informants whose quantitative, qualitative, and anecdotal input provided rich context to the findings of this report. The image below represents the diversity of these stakeholders and key informants as well as the industries and sectors they represent. The majority of stakeholders and key informants were represented by community clinics, federally qualified health centers, regional health centers, and Head Start staff and parents.

Executive Summary

Purpose

The health of a community is one of the most important indicators of the well-being of its members. The Solano County Health & Social Service Department, Maternal Child and Adolescent Health (MCAH) Bureau's Five-Year Needs Assessment reviews the health of Solano County mothers, infants, children and adolescents as well as the health systems that serve them. This process involves looking at diverse types of data and engaging with Solano County residents, community leaders, health care providers, and community-based organizations (*See Appendix A for further details on the process*).

The results of the Needs Assessment will:

1) Help the MCAH Bureau develop action plans to improve the health of mothers, infants, children, teens, and families in Solano County; and
2) Be shared with the California Department of Public Health, as a requirement of Title V Block grant funding, to create a clearer picture of the current health status of California residents.

In seeking to understand the health of the community, the Needs Assessment examines the current health of families, as well as the community conditions that support or hinder health – conditions known as the *social determinants of health*. The issues examined and prioritized in this report include these social determinants as well as the health conditions they influence.

A truly healthy community is one in which all residents can thrive, regardless of their race, gender, income, place of residence or other difference. This is part of the foundation of a community that is equitable. Equity means that people are not held back from reaching their potential because of structural and institutional racism and social conditions, systems, and policies that make it difficult to live healthy lives. The MCAH Needs Assessment supports equity in Solano County by examining the health of different populations within our county and acknowledging unequal outcomes. Conversations with local communities help identify systemic factors that promote inequity. Key strategies to improve health outcomes for all include engaging community members to better understand their lived experience and working collectively with local communities to explore solutions together.

Key Findings

Our Needs Assessment community engagement process identified 8 priority problem areas to address:	**MCAH Bureau staff also identified three additional priority problems to address:**
1. Adverse Childhood Experiences (ACEs) 2. Housing 3. Perinatal Substance Use 4. Women and Children's Mental Health 5. Perinatal Mental Health 6. Community Substance Use 7. Food Insecurity 8. Care Coordination	1. Sudden Infant Death Syndrome/Sudden Unexpected Infant Death (SIDS/SUID) 2. Infant Mortality 3. Low Birth Weight & Prematurity

Next Steps

The priority problems affecting the MCAH population in Solano County require collaborative and inter-disciplinary action to address the many factors which impact health and wellness. MCAH Bureau will continue to monitor the health data of the County and assist with coordination of systems-wide efforts to address areas of concern.

This report is a guide for the MCAH Bureau, its partners, and the community at large to collaboratively determine the action plans for the next five years. This is a call-to-action for anyone who lives, plays, works, leads, and grows up in Solano County to reflect on the identified priority problems. All are needed to change the County's health outcomes for the better. MCAH Bureau welcomes advocates, decision makers, and change agents with ideas to turn our areas of improvement into areas of excellence.

Every year, new information emerges showing how health and wellness are profoundly influenced by our past experiences, particularly those in the earliest parts of our lives. In order to promote the best health for our communities, we need to begin at the earliest point in life and continue through a woman's healthy pregnancy, infancy, childhood, and beyond. We need to set the stage for healthy future adults and elders.

Contact

For inquiries regarding this Needs Assessment report, please contact Solano County's MCAH Bureau at (707) 784-8697. Our office is open weekdays Monday to Friday from 8:00am to 5:00pm, excluding holidays.

Community Health Profile: Solano County

About Solano County

Solano County is located 50 miles northeast of San Francisco and 35 miles southwest of Sacramento. Solano County is 821 square miles in size and is a mix of rural and urban areas. The three largest cities (Fairfield, Vallejo, and Vacaville) have the bulk of the County's population.

During the recession that began in 2008, Solano County experienced high foreclosure rates, high unemployment rates, and strained finances for local public services. Solano County has since seen economic improvement, but our growth has provided new additional challenges, including gentrification leading to displacement of households, rising costs of housing, and high costs of child care. As in many other places, systems for health care and other services can be complex. Simply put, some communities of Solano County are doing well, while others are not.

Solano County's top employers include:[1]

1. Travis Air Force Base
2. Kaiser Permanente Vallejo
3. Solano County
4. California Medical Facility
5. Fairfield-Suisun School District
6. Six Flags Discovery Kingdom
7. Vallejo City Unified School District
8. Genentech Inc.
9. California State Prison Solano
10. Fairfield NorthBay Healthcare System

Demographics

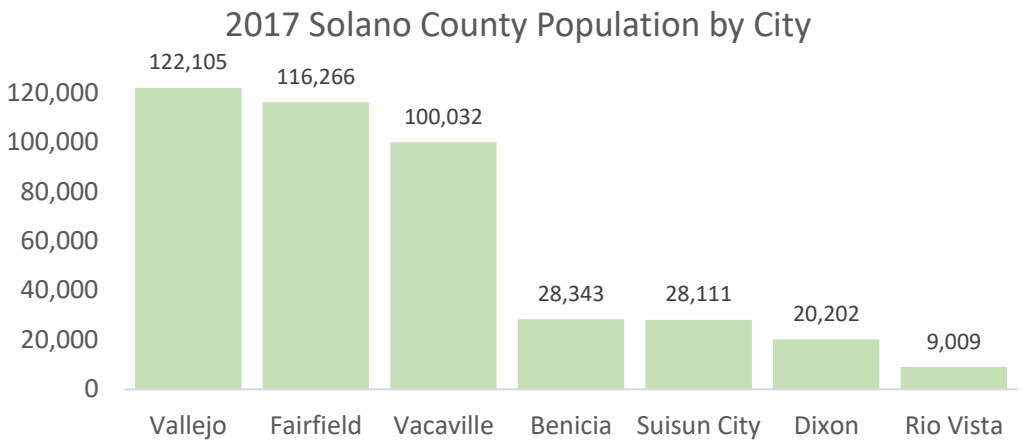
Solano County is a growing and diverse community facing many of the challenges that accompany growth, such as responding to the needs of an increasingly diverse population, increasing costs of living and housing, longer commute times and traffic congestion, and increasing need for public transportation. Solano County is one of the most ethnically diverse communities in the state of California, but not all groups experience equal health outcomes.

The following pages (7-10) are excerpts of the 2019 Solano County Health Status Report.

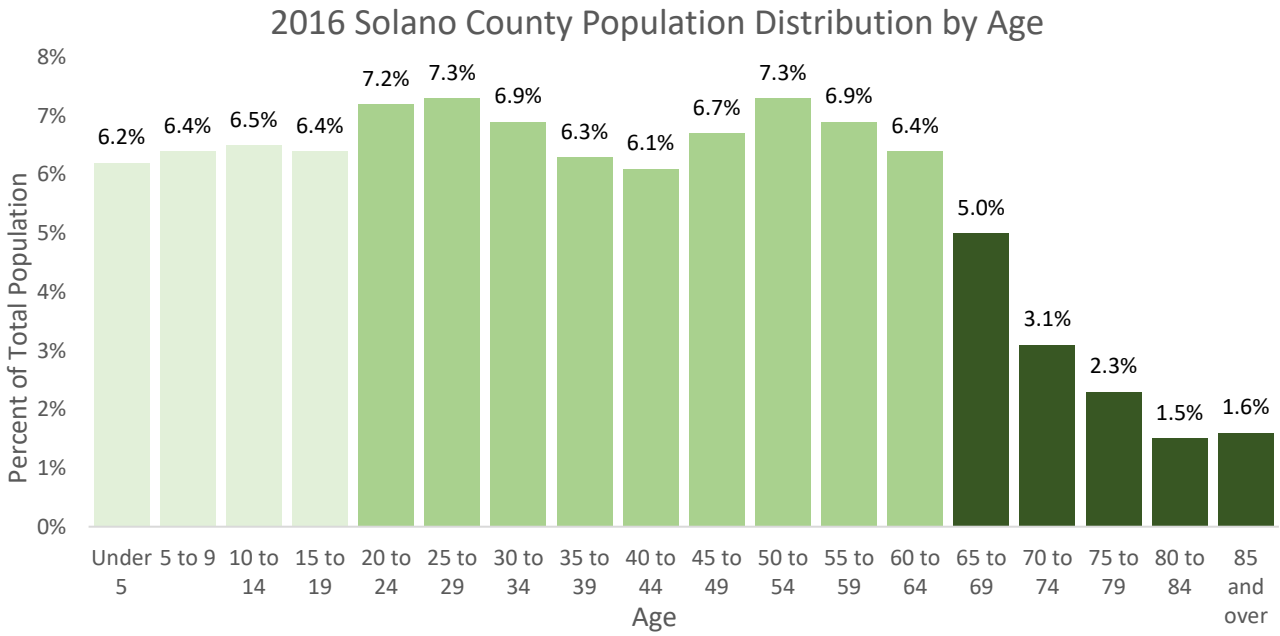
Population

The estimated population of Solano County in 2018 was 446,610 residents. The County population has grown by approximately 27,000 residents since 2010 and is projected to continue to grow. The number of residents is expected to surpass 500,000 by 2029.[1] As of 2010, about 4% of County residents lived in rural areas, and the rest lived in urban areas. The population distribution by city is shown on the next page.

[1] State of California, Department of Finance, *County Population Projections (2010-2060).* Sacramento, California. May 2018.



In 2016, approximately 26% of the population were children ages 19 or younger. Over 61% were adults ages 20 to 64. 14% were seniors ages 65 and older. The table below details the population composition by 5-year increments.[2]



The median age in the County in 2016 was 37.5 years. There are approximately 98.8 males per 100 females. In 2016, approximately 12% of County residents reported having any sort of disability.[2] In 2017, 12,069 residents received Supplemental Security Income (SSI), with over 81% of these receiving benefits due to being blind or disabled.[3] About 8% of the population, or 33,653 residents, are Veterans.[2]

[2] U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates
[3] Social Security Administration, SSI Recipients by State and County (2017).

Solano County is racially and ethnically diverse with four major race/ethnic categories represented in significant percentages:[1]

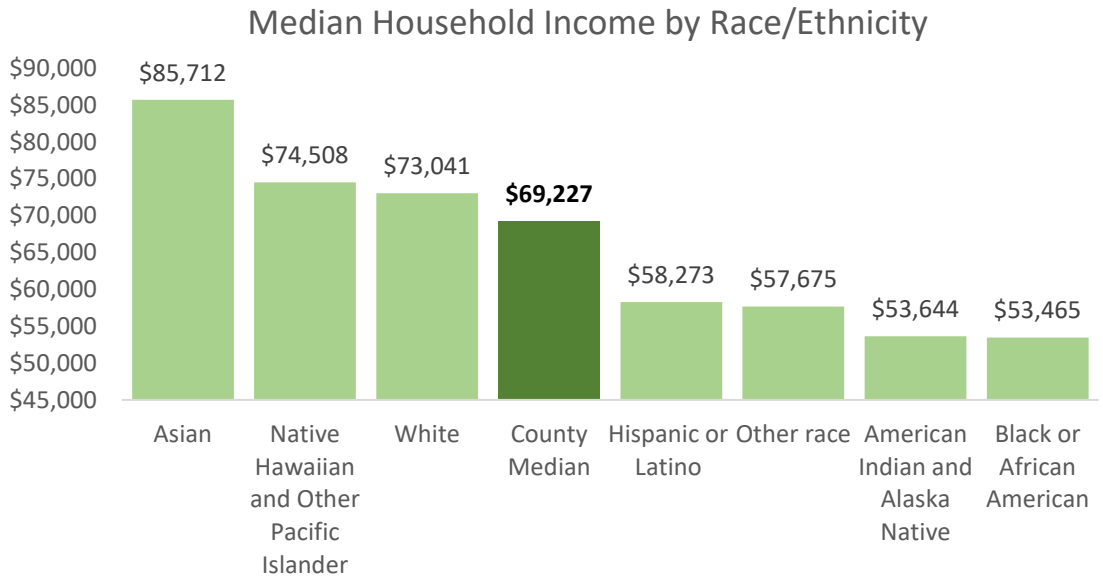
Race/Ethnicity	Percent of Total Population
White	39%
Hispanic or Latino (of any race)	26%
Black or African American	14%
Asian	14%
Two or more races	6%
Native Hawaiian and Other Pacific Islander	0.7%
American Indian and Alaska Native	0.4%

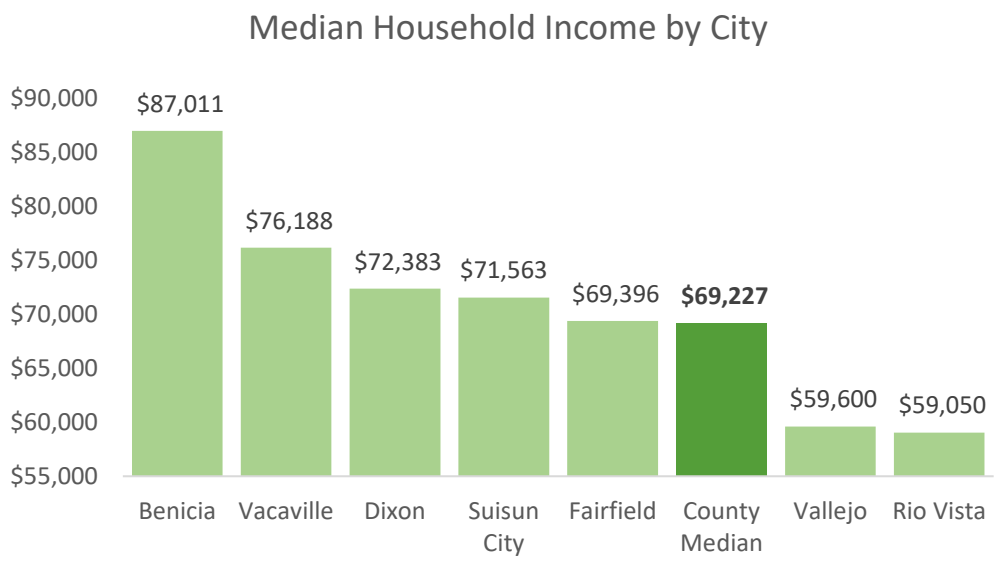
Household Structure & Income

In 2016, there were 145,315 households in Solano County. A household is defined as all the people occupying a house, apartment, or other housing unit. Occupants may be related (i.e. family members) or unrelated (i.e. roommates sharing a house). Approximately 28% of households were non-family households consisting of unrelated residents. 22% of households were residents living alone.

The average household size was 2.88 people. The average family size was 3.36 people with 36% of households having one or more children (under age 18) living in them, and 28% of households having at least one senior (age 65 or older) resident. Of family households with children, 67% were headed by two parents, 24% were single female householders, and 9% were single male householders.[2]

In 2016, the median household income was $69,227. Households in Benicia and Vacaville have a much higher median income than households in Rio Vista and Vallejo.

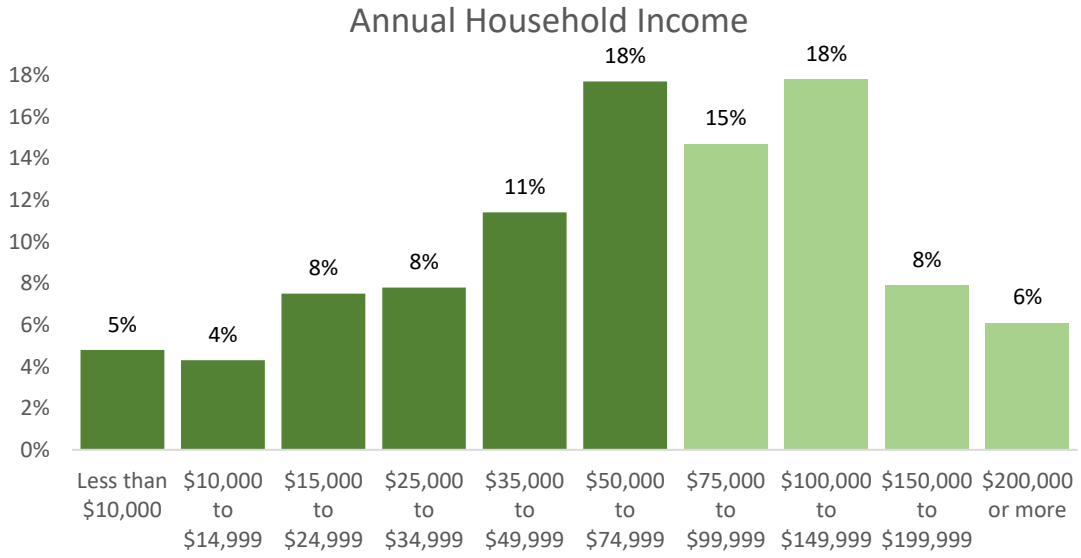




An estimated 13% of County residents fall under the federal poverty threshold, which is an annual income of $12,228 for an individual in 2016.

Approximately 1 in 10 families (or 10%) fall below the federal poverty threshold, and about 1 in 5 children (or 18%) in the County are living with families that fall below the poverty threshold. Almost 1 in 4 children (or 25%) in the County live with families that received public assistance in the prior year.[2]

The chart below shows the household income distribution for the County as a whole. The California Budget & Policy Center calculates a measure of the income needed to cover basic living expenses, such as rent and utilities, health care, food, taxes, and transportation, for Solano County residents, and calculates a "family of four self-sufficiency standard". In 2017, a family of two working parents, one preschool-age child, and one elementary-age child would need to earn an annual total of $72,482 to meet basic needs. This figure rises to $77,923 without employer-sponsored health insurance. The average household income in 4 of 7 cities in the County (Suisun City, Fairfield, Vallejo, and Rio Vista) is not sufficient to support a family of four. About half (or 54%) of households fall below the family of four self-sufficiency standard, as seen in the darker green below.



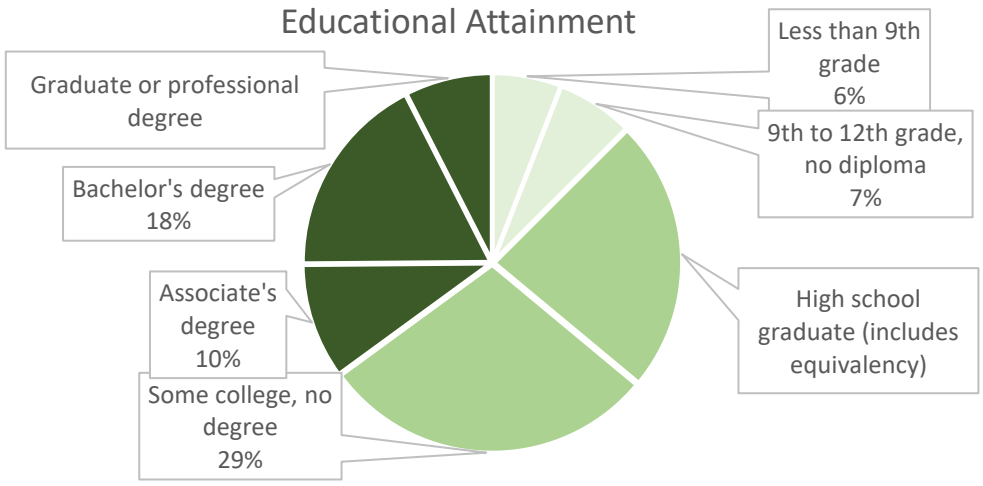
Employment

The 2016 unemployment rate for Solano County was 6.2%. Over half of the civilian labor force was employed, 1% was in the armed forces, and 37% was not in the labor force. Most employees in the County were employed in the private sector. Almost 41% of County residents are employed outside of Solano County, and nearly 17% report commuting more than an hour each way to work.[2]

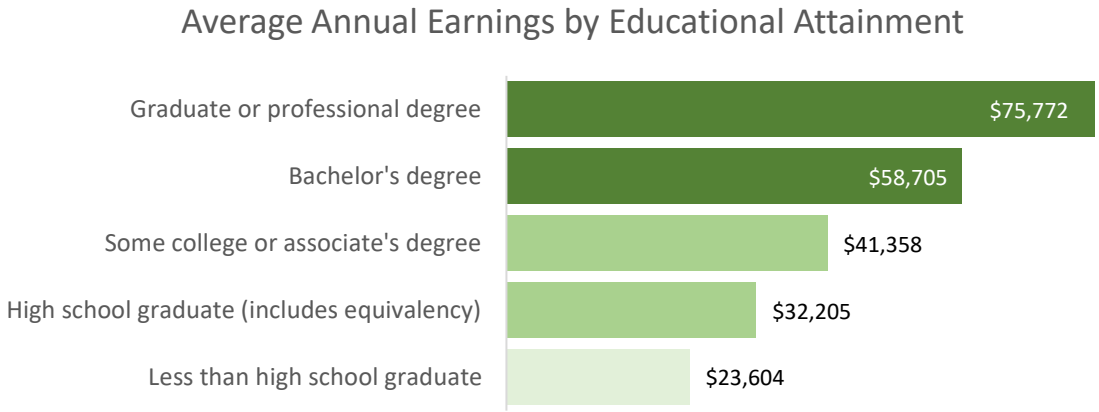
Employment Type	Percent of Civilian Employed Population Age 16 and over
Private wage and salary workers	75%
Government workers	19%
Self-employed in own business	6%
Unpaid family workers	0.1%

Education

Most County residents have a high school degree or higher (88%), and 25% have a bachelor's degree or higher.[2]



Solano County residents with advanced education (i.e. bachelor's degree, graduate degree, or professional degree) earn significantly more annual income than those with fewer years of education.[2]



The Solano County Maternal, Child and Adolescent Health System

About the MCAH System

The system that serves the health needs of Solano County's maternal, child and adolescent populations include private hospitals, County facilities, and community-based organizations. From 2014 to 2016, there were 63.3 live births per 1,000 females or an estimated average of 5,212 live births per year.[4]

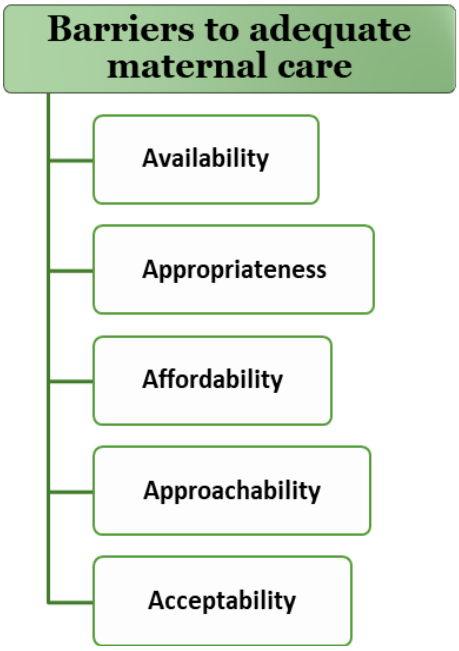
Enhanced prenatal care services are designed to provide additional support to pregnant women and may include assessments of nutrition, living conditions, screening for mental health conditions, and other types of assessment, screening and linkage to services. This type of enhanced service is provided by the Comprehensive Perinatal Services Program (CPSP), which is available to women insured by Medi-Cal through four local Comprehensive Perinatal Services Providers. Kaiser Permanente offers similar enhanced services to its members. To support pregnant women and families who are at risk of poor health outcomes and/or later child neglect or maltreatment, Solano County offers a variety of home visiting programs that provide in-home education and support. The home visiting programs available in Solano County include Public Health Nursing, Healthy Families Solano (HFS), Nurse-Family Partnership, and Black Infant Health. The Adolescent Family Life Program also serves Solano County residents until June 2020. These programs have been shown to improve birth outcomes and offer lifelong benefits for participating children and their families.

Solano County's Medi-Cal managed care plan, Partnership HealthPlan of California (PHC), contracts with the State to administer Medi-Cal benefits through local care providers to ensure access to health care for Solano County's eligible low-income residents. Routine well child exams for low-income families are provided by approximately 118 medical providers in 24 Child Health and Disability Program (CHDP) provider offices.

[4] California Dept. of Public Health, Birth Statistical Master Files; California Dept. of Finance; CDC Wonder Online Database

Barriers

Despite the many resources and services available to Solano residents, many women and children still experience challenges in accessing services within the health care system in the County. Barriers to care vary from the individual level to the system level, and are influenced by transportation, child care, insurance, and income level. Barriers disproportionately affect women, children, families living in poverty, and those who identify as minorities. Additionally, some communities face unique barriers based on their legal residence status and/or progress towards U.S. citizenship.



Adapted from Miteniece et al., 2018, based on Levesque et al., 2013

Achieving Health Equity Together

Solano County is committed to furthering equity, and one of the core tasks of the MCAH Bureau is to identify areas where there are inequities in health outcomes. These unequal outcomes are produced by unequal living conditions, access to care, and racism. Health inequities are not the result of individual behavior choices or genetic predisposition, but are caused by economic, political, and social conditions, including racism.

Investments in policies to address social determinants of health, such as poverty, have yielded to improvements in the health of children, but there is much more work to be done. This requires a careful look at our health data and how different groups are doing. It also requires conversations with local communities to understand systemic factors that promote inequity. Engaging community members to better understand their lived experience and working collectively with local communities to explore solutions together are key strategies in improving health outcomes.

This report is a guide for our MCAH system and local communities to determine potential solutions to our County's highest priority problems, with the overlying goal of achieving health equity together.

Updates from the Solano MCAH 2015-2019 Needs Assessment

The MCAH Title V Needs Assessment is conducted every five years. In 2014, Solano County's MCAH Bureau shared the following eleven priority problem areas determined at that time through its Needs Assessment process:[5]

1. High School Dropout
2. Child Abuse
3. Women's Mental Health
4. Prenatal Care (Late or Inadequate Care)
5. Substance Use/Abuse
6. Obesity
7. Intimate Partner Violence
8. Low Birth Weight/Very Low Birth Weight
9. Chlamydia
10. Children's Access to Dental Care
11. Unintentional Injury in Ages 0 to 24 Years

In the intervening years, work has been done to address these issues both by the MCAH Bureau and by many community partners. The summary table from pages 13 to 14 provides information about the priority problems identified five years ago and the actions Solano MCAH programs have taken to address priority problems identified in 2014.

Summary of MCAH Activities 2015-2019

Priority Problem	How We Addressed It
Child Abuse	• Solano MCAH Bureau offers several evidence-based home visiting programs, including Healthy Families Solano (HFS) and Nurse-Family Partnership, which have been shown to reduce incidences of child abuse and neglect for participating families. These programs support infant mental health, improve infant bonding, promote positive parenting techniques, address behavioral risk factors, and address life stressors for families. • The Referral Quality Management Collaborative (now known as Solano Perinatal Network) continued to improve the referral process for referring at-risk pregnant women to resources and programs, including home visiting programs such as Nurse Family Partnership and HFS.
Women's Mental Health	• In collaboration with the Solano County Behavioral Health Department, MCAH Bureau has implemented Solano's Mothers and Babies program, which conducts mental health screenings and provides a curriculum aimed at reducing stress and preventing depression. The Mental Health Services Act (MHSA) funding also allowed County to hire a mental health clinician whose expertise became available to women requesting in-home mental health services.
Prenatal Care (Late or Inadequate Care)	• Solano MCAH Bureau convened the Prenatal Care Learning Collaborative and its African American and Latina specific workgroups to conduct education campaigns on the importance of prenatal care and improving linkage to medical insurance and local prenatal care. • Solano MCAH Bureau also implemented a Secret Shopper project to evaluate for potential barriers to care and provide recommendations for improvement.

[5] Solano County Maternal, Child and Adolescent Health Five Year Needs Assessment 2015-2019 Final Report, November 2014.

	• Solano's Black Infant Health program implemented a pilot project strengthening the linkages between pregnant test sites and prenatal care providers in order to support referrals for women with positive pregnancy tests to prenatal care.
Substance Use/Abuse	• Solano MCAH Bureau increased the number of screenings of pregnant women for perinatal substance use by training Comprehensive Perinatal Services Program (CPSP) providers and providing access to the 4PsPlus Perinatal Substance Abuse screening tool. 2,047 women were screened from 2015 to 2019.
Low Birth Weight/Very Low Birth Weight	• Healthy Families Solano (HFS) provided case management to 322 families from 2015 to 2019. Among participating families, about 97% of infants were delivered full-term and at optimum birth weight. • Solano MCAH Bureau supported the activities of Solano HEALS (Health Equity for African American/Black Lives in Solano), an organization whose mission is to promote equity of birth outcomes for Black babies and families in Solano County. Solano HEALS efforts are focused on improving mental health, race equity training for medical providers, and improving birth outcomes through group prenatal care models.

Solano MCAH Bureau also addressed additional issues identified by staff:

Specific Need	How We Addressed It
SIDS/SUID	• Solano's SIDS program increased patient awareness of SIDS risk factors by working with prenatal care providers and pediatricians to improve education policies for patients. • Solano's SIDS program promotes October SIDS Awareness month, including social media education campaigns and distribution of up-to-date SIDS educational materials. • From 2015 to 2019, Solano MCAH Bureau's home visiting programs delivered SIDS and Safe Sleep education to a little over 700 parents. Solano's Black Infant Health program also delivered SIDS and Safe Sleep education to 120 community members.
Infant Mortality	• Solano's MCAH Bureau addressed this issue through multiple programs, including early entry to prenatal care initiatives aimed at reducing the rate of prematurity, preconception health education, and targeted home visiting programs for at-risk families. • Solano's MCAH Bureau supported the activities of Solano HEALS (Health Equity for African American/Black Lives in Solano) in promoting equitable birth outcomes for Black babies and families in Solano County and reducing Black infant deaths. • Solano's Fetal and Infant Mortality Review (FIMR) program reviews cases of fetal and infant death and recommends systems improvements for preventing future deaths and better serving families that have suffered a fetal or infant loss.

What Has Changed Regarding the Issues Identified in the 2015-2019 Needs Assessment?

Increasing	Since the last Needs Assessment, rates of mental health issues, substance abuse, chlamydia, and obesity continue to persist or increase as health problems in Solano County.
Stable	Since the last Needs Assessment, there was no significant change in the rates of SIDS/SUID and infant mortality rates. Disparities still persist for African American/Black infants in Solano County. Rates of domestic violence calls have not changed significantly.
Decreasing	Since the last Needs Assessment, improvements were seen in the rate of high school dropout, early entry to prenatal care, low birth weight, and breastfeeding in Solano County.

2020-2024 MCAH Health Status Indicators

How Healthy are Mothers, Children, Teens, and Families in Solano County?

Data Review Process

MCAH staff examined all health indicators and paid special attention to evaluating County performance in three areas:

- How is Solano County doing compared to the state of California?
- How is Solano County doing compared to our past? Are we improving or worsening over time?
- How is Solano County doing compared to a set of national benchmarks called Healthy People 2020 goals?

MCAH staff reviewed data from the previous needs assessment and compared it to the newest set of data, if available. Then the staff determined whether there is a significant statistical change and if the change is moving towards a desired direction. Solano County has made considerable progress in the last five years with certain health indicators. In other areas, there are still significant challenges to the health and wellness of mothers, children, adolescents, and families who live, play, work, and grow up here.

Where We Are Doing Well Over a Ten-Year Period?	Where Can We Improve?
• More pregnant women, children age 0 to 18, and residents 18 to 64 have health insurance coverage; • More pregnant women are able to start prenatal care in their first trimester; • More mothers are waiting at least 18 months to have another child; • More pregnant women are receiving tetanus immunizations during their pregnancy; • Fewer C-sections are performed for low risk pregnancies; • Fewer babies are being born at low birth weight; • More babies are being breastfed, which is beneficial to the health of both mom and baby; • Fewer teen pregnancies; and • Rates of poverty among children and families have decreased.	• Our children are exposed to adverse childhood experiences (ACEs), which can lead to poor health outcomes over their lifetimes; • Many families are experiencing unstable housing and homelessness; • Rates of substance abuse are high in the general community and among pregnant women; • Many women are experiencing poor mental health conditions during and after pregnancy; • Many teens suffer from poor mental health, leading to possible self-harm or suicide; • Rates of sexually transmitted infections have increased for teens age 15 to 19; • Some infants are dying, sometimes in their sleep, for unknown reasons; and • Families report it is difficult to navigate through the complex health care systems to access appropriate services for their needs.

Sources: See Appendix D for details on specific health indicators and their data sources

The 2020-2024 Needs Assessment looked at more health indicators than in previous years, expanding the number of health indicators considered to 77, compared to 62 in the previous 2015-2019 Needs Assessment. The Needs Assessment expanded its review of social and economic determinants of health, which impact health outcomes.[6]

- The 77 health indicators included new indicators such as adults who experienced four or more adverse childhood experiences (ACEs), public school students experiencing depression-related feelings, and public school students reporting on e-cigarette use and marijuana use.

[6] Henry J Kaiser Family Foundation. (2008). *Beyond Health Care: The Role of Social Determinants in Promoting Health and Health Equity* (Issue Brief May 2018). Retrieved fromhttps://www.kff.org/disparities-policy/issue-brief/

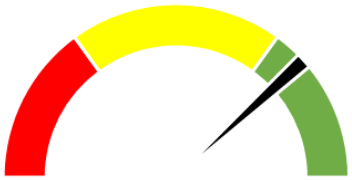
- Additionally, the Needs Assessment included Children and Youth with Special Healthcare Needs (CYSHCN) in its own category and included indicators such as public school special education enrollment, total California Children's Services enrollment, and recipients of transition services for CYSHCN ages 15 to 44.

Disparities

In addition to rates and trends, MCAH staff examined the performance of different racial/ethnicity groups for indicators with information available and noted where significant health disparities exist. Identifying and addressing race/ethnicity-based disparities are important steps in promoting health equity for all residents of Solano County.

Information about all health indicators is available in the Solano County Maternal, Child, and Adolescent Health Indicator Summary Tool (see Appendix D). Pages 16 to 17 summarize County data, with comparisons to the state and national benchmarks.

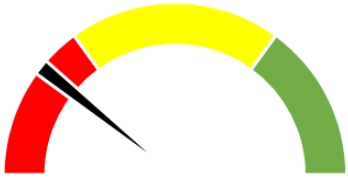
How are we doing as a County?



WHERE WE ARE DOING BETTER

Solano County is doing better in health indicators including health insurance coverage for children and pregnant women, birth spacing (at least 18 months between live birth of previous pregnancy and next pregnancy), number of C-sections for low risk pregnancies, tetanus immunizations during pregnancy, teen pregnancy, and breastfeeding.

Solano County met the Healthy People 2020 Goals and Suggested Reductions for early entry to prenatal care, preterm birth (delivery before 37 weeks gestation), low birth weight (less than 2,500 grams or 5 lbs. 5 oz), very low birth weight (less than 1,500 grams or 3 lbs. 3 oz), infant death (death before 1 year of age), and teen pregnancy.

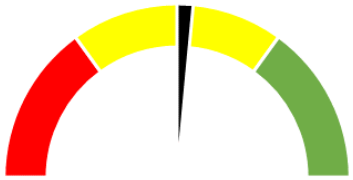


WHERE WE CAN IMPROVE

Solano County could improve in health indicators including unemployment, any smoking during pregnancy, gestational diabetes, substance abuse in pregnancy, substance abuse in the general population, mood disorders, and emergency department visits and hospitalizations for mental illness, substance abuse, and self-injury.

Solano County does not meet the Healthy People 2020 Goals and Suggested Reductions for mood disorders, 100% insurance coverage for children age 0 to 18 and population age 18 to 64, birth spacing, motor vehicle injury hospitalizations among population age 0 to 14, emergency department visits for motor vehicle injury among

population 0 to 14 and age 15 to 24, and emergency department visits and hospitalizations for assaults, substance abuse, mental health, co-occurring mental health and substance abuse, and self-injury. Although there has been improvement in the number of C-sections for low risk pregnancies, this rate has also not yet met the Healthy People 2020 goal.

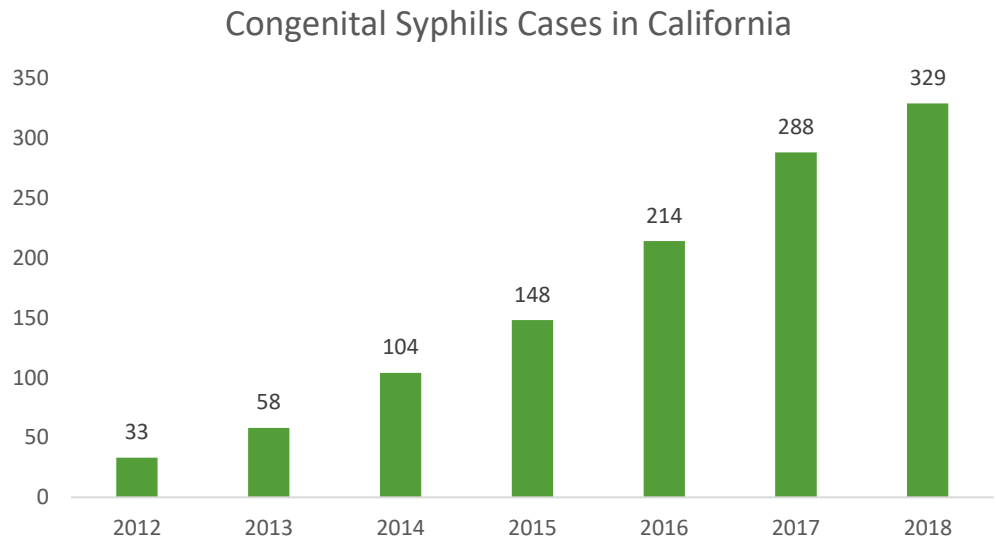


WHERE OUR RATES & TRENDS ARE STABLE

Solano County has stable rates in Sudden Infant Death Syndrome/Sudden Unexpected Infant Death (SIDS/SUID), infant mortality (death before 1 year of age), prenatal depressive symptoms, postpartum depressive symptoms, preterm birth (delivery before 37 weeks gestation), very low birth weight (less than 1,500 grams or 3 lbs. 3 oz), food insecurity during pregnancy, and poverty.

NATIONAL & STATEWIDE HEALTH CONCERN: CONGENITAL SYPHILIS

According to the Centers for Disease Control and Preventions and California Department of Public Health, there is a national and statewide concern for an increase in cases of congenital syphilis (CS), which can infect a baby if a pregnant woman tests positive for syphilis and does not receive treatment during her pregnancy.



Source: California Department of Public Health, Sexually Transmitted Disease 2018 Data

Congenital syphilis can lead to miscarriage (losing the baby during pregnancy), stillbirth (a baby born dead), prematurity (a baby born early), low birth weight, or death shortly after delivery, as well as long-term chronic health problems, including deformed bones, severe anemia (low blood count), enlarged liver and spleen, jaundice (yellowing of the skin or eyes), brain and nerve problems like blindness and deafness, meningitis (inflammation of brain and spine cord membranes, typically caused by an infection), and skin rashes.[7]

[7] Centers for Disease Control and Prevention. (2019). Congenital Syphilis – CDC Fact Sheet. https://www.cdc.gov/std/syphilis/stdfact-congenital-syphilis.htm

Maternal, Child and Adolescent Health Bureau Priority Problems

The MCAH Bureau staff conducted its data collection and data analysis phases from August 2018 to June 2019. The final weighted results from 161 survey respondents and 9 key informants are ranked below.

The staff then further deliberated with its Internal Advisory Board regarding MCAH's expertise on the identified priority problem; existing significant disparities; potential scope of the issue (how many people in the population are affected); seriousness of health consequences; feasibility of implementing interventions given resources, political will, expertise, or opportunities to work on this problem right now; effectiveness of interventions (how likely are activities to likely make a significant difference), and opportunities to leverage other efforts in synergistic work.

From this further deliberation, the Solano MCAH Bureau staff determined the top 8 community-driven ranked priority problems and 3 additional priority problems that are significant to the health and well-being of infants and their families in Solano County. Five Year Action Plans will be created to inform the activities of Solano's MCAH Bureau from 2020-2024. MCAH will monitor the data and health-related outcomes regarding priority problems without 5 Year Action Plans and work with agencies, organizations, and community members to address these problems for the MCAH population.

The most recent data available from the state of California was used. In most cases, 2015 was the most recent data year available. A table with the set of health indicator data used for analysis is available in Appendix D.

Community Ranked Priority Problems (Weighted)
1. ACEs
2. Housing/Homelessness
3. Perinatal Substance Use
4. Community Mental Health
5. Perinatal Mental Health
6. Substance Use
7. Food Security
8. Access to medical care/navigation
9. STIs
10. Lack of social support/isolation
11. Crime/violence
12. SIDS
13. Childhood Obesity
14. Gestational Diabetes
15. Lack of affordable child care
16. Birth Spacing
17. Motor Vehicle Accidents – Children

Priority Problems MCAH & External Partners Will Address
1. ACEs
2. Housing
3. Perinatal Substance Use
4. Community Mental Health
5. Perinatal Mental Health
6. Community Substance Use
7. Food Security
8. Care Coordination

Additional Problems MCAH & External Partners Will Address
1. SIDS/SUID
2. Infant Mortality
3. Low Birth Weight & Prematurity

The following sections will offer additional detail about the eleven priority problems identified.

Priority Problem #1: Adverse Childhood Experiences (ACEs)

Why Is This Important?

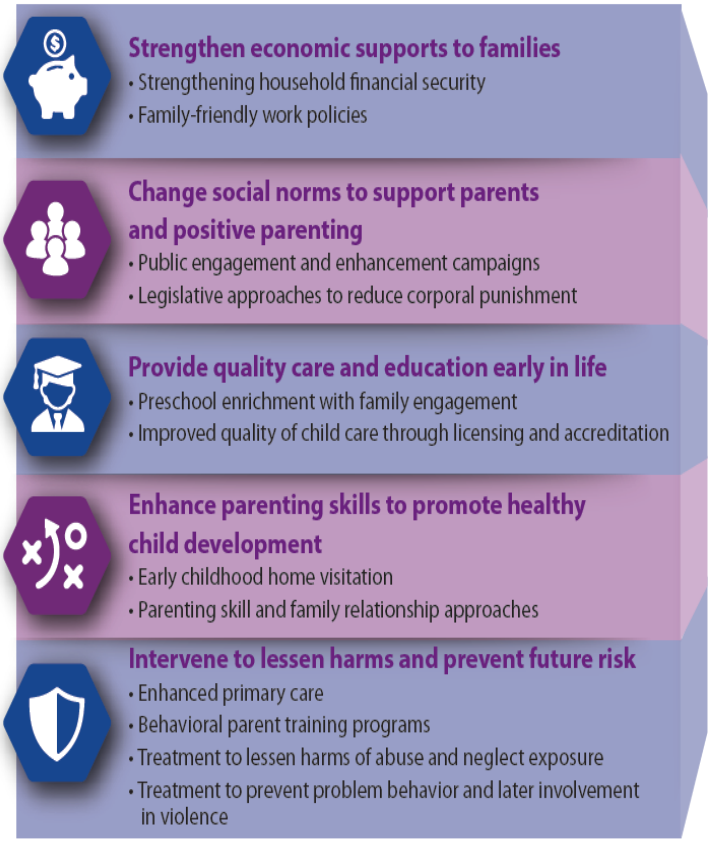
Adverse Childhood Experiences (ACEs) is the term used to describe all types of abuse, neglect, and other potentially traumatic experiences that occur to people under the age of 18. ACEs are common across all populations.[8] Examples of ACEs include poverty, child abuse and neglect, family violence, parental illness and disability, parental substance misuse, parental mental health issues, and family separation or bereavement.[9] ACEs can create ongoing toxic stress, which causes wear and tear on the body, and leads to poor health outcomes, including risky health behaviors, chronic health conditions, and early death. The original groundbreaking ACE study conducted by Kaiser Permanente and the Centers for Disease Control and Prevention (CDC) in the late 1990's revealed that ACEs were common and that adults with higher numbers of ACEs had correspondingly greater risks of various adult health risk behaviors and diseases including tobacco use, alcohol and drug use, obesity, depression, sexually transmitted diseases, heart disease, cancer, stroke, and diabetes.[10]

The trauma associated with ACEs may even extend to future generations. In 2018, researchers Racine et al. concluded that mothers who experienced more adversity in childhood experienced more health risks in pregnancy, and in turn, delivered infants who were born with more infant health risks, which were associated with poorer developmental outcomes at 12 months of age.[11]

Nationally Recommended Strategies to Address ACEs

In 2016, the National Center for Injury Prevention and Control published a technical package for policy, norm, and programmatic activities regarding two types of ACEs. The report identified five key strategies and different approaches (see image on right) to preventing child abuse and neglect.[12]

These include strategies where public health agencies can bring leadership and resources towards implementation efforts as well as strategies where public health agencies are more suited as collaborators while leadership and commitment from other sectors are critical.



Source: Fortson et al. (2016). National Center for Injury Prevention and Control, Centers for Disease Control and Prevention

[8] Centers for Disease Control and Prevention (2019). Adverse Childhood Experiences (ACEs). https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy

[9] The Centre for Effective Services (2016). https://www.effectiveservices.org/downloads/Access_Evidence_05.09.16.pdf

[10] Merrick MT, Ford DC, Ports KA, Guinn AS. (2018). Prevalence of Adverse Childhood Experiences From the 2011-2014 Behavioral Risk Factor Surveillance System in 23 States. *JAMA Pediatrics*, 172(11), 1038-1044, doi: 10.1016/S0749-3797(98)00017-8

[11] Racine et al. (2018). "Maternal Adverse Childhood Experiences and Infant Development." *Journal of Pediatrics*, Vol. 141, Issue 4

[12] National Center for Injury Prevention and Control. (2016). "Preventing Child Abuse and Neglect: A Technical Package for Policy, Norm, and Neglect." https://www.cdc.gov/violenceprevention/pdf/can-prevention-technical-package.pdf

How Can We Measure This?

Measuring and tracking Adverse Childhood Experiences (ACEs) is relatively new, and methods of collecting data are still being developed. Since 2009, up to 42 states have continued to collect information about ACEs through a survey called the Behavioral Risk Factor Surveillance System (BRFSS). California's BRFSS data indicates that 6 in 10 households report an ACE score of 1 or more, and 1 in 5 households in California reported an ACE score of 4 or more, indicating significant increased risk for negative health outcomes.[13]

> "The earliest years of infancy and childhood are not lost, but like a child's footprint in wet cement, are often life-long". – *CDC-Kaiser Permanente's The Adverse Childhood Experiences (ACE) Study, 1998*

In Solano County, about 1 in 5 households report an ACE score of 4 or more. Solano's rate is similar to rates of the state and neighboring Counties such as Sonoma, Sacramento, and Contra Costa. Solano County MCAH will continue to participate in efforts to strengthen families and prevent ACEs, and to identify children who have experienced ACEs and refer them to helping services.

What Health Disparities Exist?

Race/ethnic group data on Solano County ACEs scores is not yet available from the Behavioral Risk Factor Surveillance System. Nationwide data suggests that children of different races and ethnicities do not experience ACEs equally. Nationally, 61 percent of Non-Hispanic Black children and 51 percent of Hispanic children have experienced at least one ACE, compared with 40 percent of Non-Hispanic White children and only 23 percent of Asian non-Hispanic children. In every region, the prevalence of ACEs is lowest among non-Hispanic Asian children. In most regions, the prevalence of ACEs is highest among non-Hispanic Black children.[14]

Examples of Successful Collaboration Addressing ACEs

In February 2019, Solano Kids Thrive (SKT), a collective impact group made of different Solano County organizations invested in youth, revealed its "Resilient Solano Strategic Plan" to build resilient community working together to prevent and heal trauma. In addition to conducting screenings of the film "Resilience", which addresses adverse childhood events, SKT facilitated a Resilient Solano Summit in May 2019, which was attended by parents, educators, providers, and other community members. Current strategies include media campaigns, communitywide trainings, presentations, film screenings, and identifying Solano champions.

[13] Rodriguez, D., et al. (2016). Prevalence of adverse childhood experiences by county, California Behavioral Risk Factor Surveillance System 2008, 2009, 2011, and 2013. Public Health Institute, Survey Research Group. Accessed August 23, 2019

[14] Hacks, Vanessa and Murphey, David. (2018). The prevalence of adverse childhood experiences, nationally, by state, and by race or ethnicity. Accessed August 23, 2019. https://www.childtrends.org/publications/prevalence-adverse-childhood-experiences-nationally-state-race-ethnicity

Priority Problem #2: Housing

Why Is This Important?

Mothers, children and their families are at particular risk of poor health outcomes if they are homeless or are in unstable housing. If the cost of housing is too high, it may be difficult for families to stay in their housing or may have to make difficult tradeoffs between paying for housing and paying for other necessities.

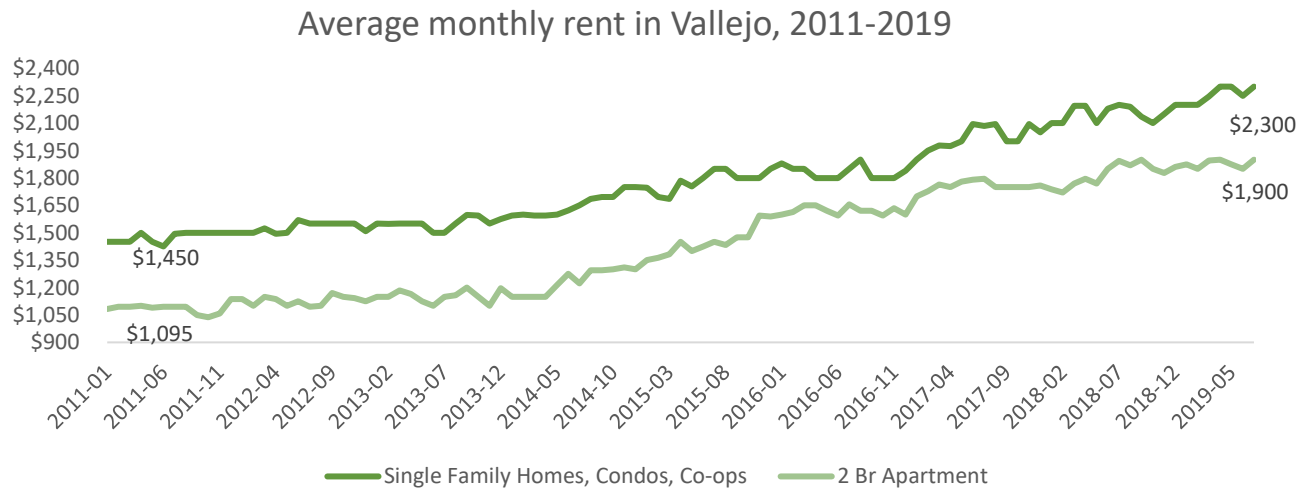
The Bay Area Regional Health Inequities Initiative (BARHII) released a policy brief on housing insecurity and displacement in the Bay Area, citing that about 9 out of 10 of Bay Area renter households are rent-burdened or spend more than 30% of their budget on housing.[15] As such, households experience housing insecurity and are vulnerable to displacement from their homes and neighborhoods and can be forced to live in unsafe or overcrowded housing and/or move away from neighborhoods where they have family connections and opportunities for a good education or jobs. When families lose stable housing, they may need to leave supportive communities. Children may need to change schools.

Cost of housing: Compared to San Francisco, Solano County has more affordable housing. The median home value in Solano County is $439,500 and rent is on average $2,250.[16] Despite lower housing costs compared to other parts of the Bay Area, households in Solano are still facing housing instability and homelessness. In order to afford the average priced 2-bedroom home in Solano County, a person would have to work 58.7 hours per week at an average wage. This is similar to the state rate of 60.79 hours per week at an average wage.[17] As an example of the rise in housing costs, the average monthly rent in Vallejo increased by about 54% for a 2-bedroom apartment and by 45% for single family homes, condos, or co-ops living spaces over the last eight years.[18]

DEFINITIONS

Gentrification:
Neighborhood change where new investment and higher-income residents move into a neighborhood

Housing Burden:
Families who pay more than 30 percent of their income for housing and may have difficulties affording basic necessities such as food, clothing, transportation, and medical care



[15] Bay Area Regional Health Inequities Initiative. (2019). *Housing Newsflash: Vallejo Rent Moratorium, State Rent Control Advances*
[16] Zillow. (2019). https://www.zillow.com/solano-county-ca/home-values/. Accessed November 6, 2019
[17] Salud America! (2019). Health Equity Report Card for Solano County. https://salud-america.org/
[18] Zillow Research. Data 2011-2018. Average rent in Vallejo, CA. Available at https://www.zillow.com/research/data

Increased costs of housing affect individuals and families, but they can also re-shape neighborhoods and cities, pushing some groups out and disrupting social networks. These types of changes impact an entire community's ability to be healthy.

Number of homeless individuals: In 2019, local agencies conducted a Point-in-Time count of the homeless population of Solano County. A total of 1,151 people were identified as homeless in Solano County at the time of the count. Over three quarters (77%) of people experiencing homelessness were age 25 or older, 18% were transition-age youth ages 18 to 24, and 5% were children under age 18. Approximately 1 in 4 of the homeless population were female and 3 in 4 were male. 16% of homeless individuals identified as LGBQT. Homeless individuals identified primarily as White (39%) or Black (37%). Homeless individuals identifying as Black were overrepresented compared to the general population of Solano County.[19]

Residence on Night of the Count	Percent of Homeless Population Counted
Emergency Shelter	12%
Transitional Hosing	7%
Vehicle	37%
On the Street	28%
Tent/Encampment	15%
Abandoned Building	1%

What Are We Measuring?

Solano County measures the percentage of households with severe housing problems. In the most recent time period available, 2013-2015, the percentage of families with severe housing problems was 23% (or 1 in 5 families).

What Health Disparities Exist?

The burden of severe housing cost is widespread and impacts communities across the nation. The 2019 County Health Rankings Key Findings Report indicates that counties with more residential segregation of Black and White residents have higher rates of severe housing burden for both Black and White households, but Black residents face greater barriers to opportunity and health. Nearly 1 in 4 Black households spends more than half of their income on housing compared to 1 in 10 White households.[20] In Solano County, the median household income for White residents is $73,041, compared to $53,465 for Black residents.[21]

Example of Successful Collaboration Addressing Housing

Solano County Health & Social Services Department's Public Health Division participates in The Bay Area Regional Health Inequities Initiative (BARHII), which has supported Bay Area public health departments to address health inequities through a range of initiatives over the last 20 years.

BARHII and Oakland-based organization Urban Habitat worked with the Vallejo Housing Justice Coalition to deter a recent local housing crisis. In May 2019, tenants in the Strawberry Hill and Holiday Gardens in Vallejo were notified that management of the rental properties had changed and more importantly their rent was doubling. In August 2019, Vallejo City Council voted to adopt an emergency 30 day renewable ordinance that prevented evictions, temporary rolls back rent increases, and prevents increases above 10% per year. The ordinance prevents developers from increasing rent by more than 10% per year. BARHII recognizes that this provides short-term relief but does not provide long-term stability Vallejo residents need to feel secure in their housing.[22]

[19] Applied Survey Research. (2019). Solano County Homeless Census & Survey Comprehensive Report
[20] County Health Rankings & Roadmaps. (2019). https://www.countyhealthrankings.org/reports
[21] Robert Wood Johnson Foundation. (2019). https://www.rwjf.org/en/library/articles-and-news
[22] Bay Area Regional Health Inequities Initiative. (2019). http://barhii.org/campaigns/

Priority Problem #3: Perinatal Substance Use

Why Is This Important?

The use of alcohol, tobacco, and other drugs during pregnancy or breastfeeding can be harmful for both mother and baby. In addition to known harms to the developing fetus and an increased risk for low birth weight or premature birth, studies have associated exposure to tobacco, alcohol, and illicit drugs with increased risk for SIDS. Accidental suffocation of an infant in bed is also more likely when parents share a bed with the infant and if a parent is under the influence of alcohol and illicit drugs.[23]

Compared to the state of California (2.7%), more pregnant women in Solano (5.7%) report any smoking during their 1st or 3rd trimesters. However, this is an improvement from rates of tobacco use during pregnancy since 2006, when regional date reported rates of 7.4%.

County level perinatal alcohol use data is difficult to measure. However, general population alcohol use data is available. According to the 2019 Solano County Health Status Report, 1 in 5 adults from Fairfield, Vacaville, and Vallejo reported binge drinking in the month prior.[24]

After delivery, cocaine, methadone, amphetamines, alcohol, tobacco, and PCP (or angel dust) all cross into breast milk. There is not enough data to determine whether or not marijuana use is safe during pregnancy or breastfeeding, but the CDC and experts of perinatal alcohol and substance use also discourage marijuana use in pregnancy or while breastfeeding.[25]

Opioid use has been identified as an area of increasing concern for pregnant women. Neonatal Abstinence Syndrome (NAS) or neonatal opioid withdrawal syndrome (NOWS) may occur when a pregnant woman uses drugs, such as opioids, during pregnancy. The National Institute on Drug Abuse (NIDA) reports that a recent national study indicated a fivefold increase in new cases of NAS/NOWS, which means that one baby is born with this syndrome every 15 minutes in the United States. NIDA reports that approximately 3,409 California infants are born with NAS/NOWS every year.[26]

In 2018, there were 277,436 prescriptions for opioids in Solano County. This is a 21% decrease from 343,300 prescriptions for opioids in 2016. In 2018, there were 110 emergency department visits related to any opioid overdose in Solano County. In 2016, 6 out of 7 opioid overdose deaths were due to prescription opioid overdose.[24,27]

What Are We Measuring?

Substance use among pregnant women is difficult to measure. Pregnant women are often reluctant to self-disclose substance use. Some substance use may be identified through toxicology screening during prenatal care or at delivery, but many substances, including tobacco or alcohol use, are not identified this way. To provide a consistent way to measure trends in substance use, Solano County measures the rate of substance use diagnosis per 1,000 hospitalized pregnant

[23] American College of Obstetricians and Gynecologists. (2016). https://pediatrics.aappublications.org/content/138/5/e20162940
[24] Solano County Public Health Epidemiology. 2019. https://www.solanocounty.com/depts/ph/reports.asp
[25] Centers for Disease Control and Prevention. (2019). https://www.cdc.gov/breastfeeding
[26] National Institute on Drug Abuse. (2019). California Opioid Summary. https://www.drugabuse.gov/drugs-abuse/opioids
[27] California Department of Public Health. 2017. https://www.solanocounty.com/depts/ph/reports.asp

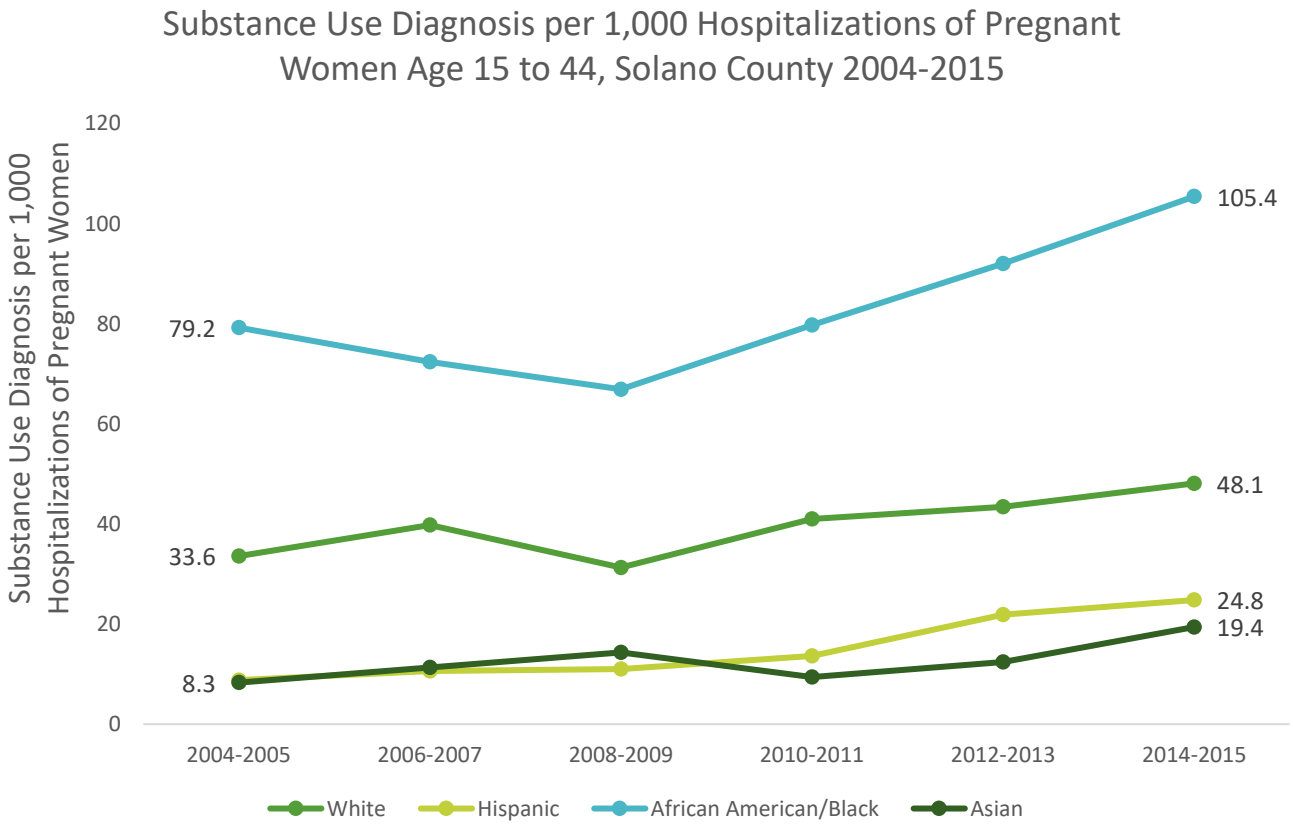
women age 15 to 44. This measure refers to pregnant women who were hospitalized for any reason, and who had a diagnosis of substance use noted in their medical records.

Over the last ten years, rates of substance use diagnosis for pregnant women have risen significantly, both throughout California and in Solano County. This may reflect both a growing pattern of substance use in general, and also an increased awareness of the issue of perinatal substance use, resulting in more doctors making a diagnosis. From 2013 to 2015, the rate of substance use diagnosis among hospitalized pregnant women in Solano County age 15 to 44 was 44.1 per 1,000 hospitalizations of pregnant women. This was also twice as high as the state of California's overall rate of 19.9.

In comparison to 2004 to 2008, there was also a significant increase in the rate of hospitalizations among infants in Solano County age 0 to 89 days with a substance-affected diagnosis per 1,000 hospital births from 2008 to 2015.

What Health Disparities Exist?

Patterns of substance use vary across race/ethnic groups. For example, in some groups, alcohol use is more prevalent while in others, marijuana use is more common. Overall, Hispanic/Latina and Asian women have the lowest rates of perinatal substance use.



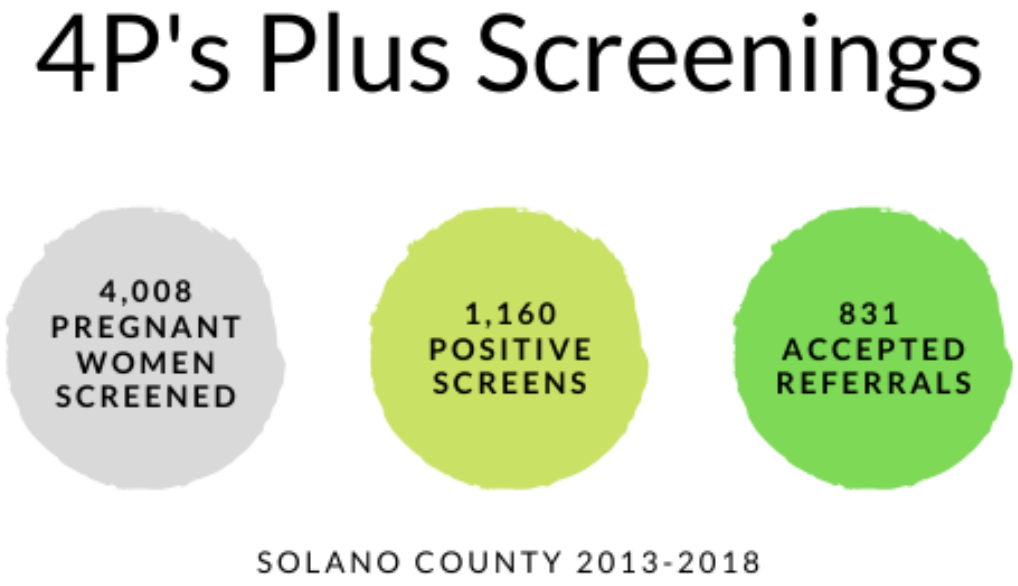
Source: Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data

Solano County, as in many other places, has more than one kind of disparity that affects rates of substance use hospitalizations. Some differences are due to different rates of substance use. Other differences are due to different levels of access to care, which can be affected by factors including income, insurance, willingness to disclose substance use, availability of services in appropriate languages, and more.

Example of Successful Collaboration Addressing Perinatal Substance Use

Since 2006, Solano MCAH Bureau's partnering agencies have conducted perinatal substance use screenings using the 4P's Plus screening instrument. 4P's Plus is a validated screening instrument specifically designed to quickly identify pregnant women at risk for use of tobacco, alcohol, or illicit drugs.

From 2013 to 2018, a little over 4,000 pregnant women were screened for substance use. About 3 in 10 women reported having used substances (alcohol, tobacco, or other drugs) in the month before they knew they were pregnant, putting them at risk for use during pregnancy. About 3 in 4 women who were offered referrals for substance use accepted the referral.



Priority Problem #4: Women and Children's Mental Health

Why Is This Important?

Mental illnesses are among the most common health conditions in the United States. The Centers for Disease Control and Prevention (CDC) estimates that more than 50% of people in the United States will be diagnosed with a mental illness or disorder at some point in their lifetime.[28,29] 1 in 5 Americans will experience a mental illness in a given year.[30]

Mental Health in Children and Adolescents

According to the U.S. Department of Health & Human Services, common mental health disorders in adolescence include those related to anxiety, depression, attention deficit hyperactivity, and eating.[31] Through the administration of the California Healthy Kids Survey, 1 in 4 Solano County public health 9th graders reported experiencing depression related feelings.[32] Solano Youth Voices, a youth-led partner of the Children's Network of Solano County, conducted a needs assessment targeting youths in Solano County. Respondents were primarily youths between the age 14 and 17 (about 71%). Mental health, bullying, and drug/alcohol use were voted as the 2nd, 3rd, and 5th top issues for youth in Solano County. [33]

The CDC recognizes suicide as a serious public health problem. In 2017, one person died from suicide every 11 minutes.[34] Suicide was the second leading cause of death in youth ages 10-14 and young adults ages 15 to 34 in the United States.[35]

What Are We Measuring?

Compared to past years, Solano County demonstrated significant increases in the rate of hospital admissions of youth age 15 to 24 and women of reproductive age (15 to 44 years) with a mental health diagnosis, substance use diagnosis, co-occurring mental health/substance abuse diagnosis, intentional self-injury diagnosis, and mood disorder diagnosis. Emergency department visit data for these age groups also demonstrates significant increases for these health indicators compared to Solano's past years.[36]

OSHA hospital discharge data shows that among youth and adults ages 15 to 24, Blacks and Whites were twice as likely to have a mental health diagnosis associated with a hospitalization as Hispanics and Asians.[36]

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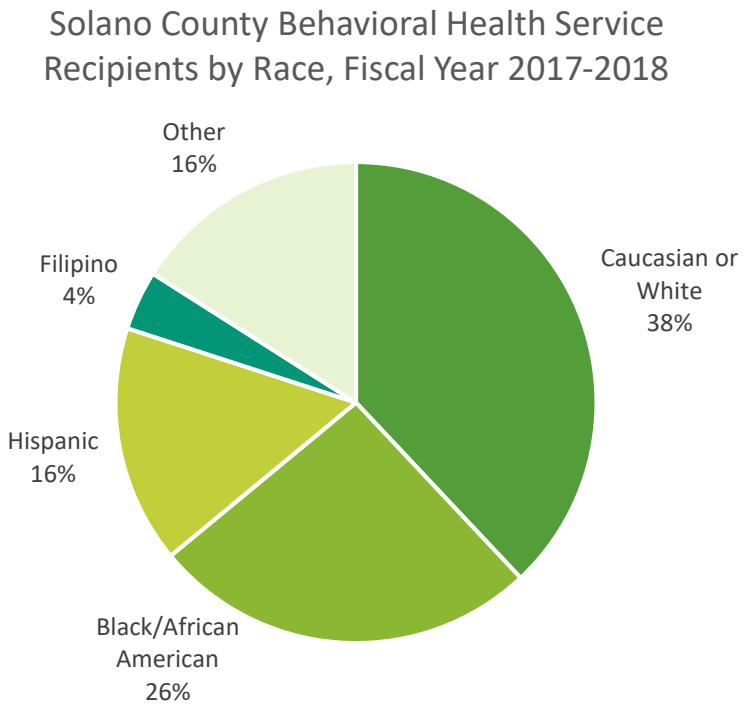
[28] Centers for Disease Control and Prevention. (2019). Learn About Mental Health. https://www.cdc.gov/mentalhealth/learn/index.htm
[29] Kessler et al. (2007). *World Psychiatry*, Volume 6, Issue 3. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2174588/
[30] Substance Abuse and Mental Health Services Administration. (2016). Key Substance Use and Mental Health Indicators in the United States: Results from the 2015 National Survey on Drug Use and Health. https://www.samhsa.gov/data
[31] U.S. Department of Health and Human Services, National Institute of Mental Health. (2017). https://www.nimh.nih.gov/health
[32] California Department of Education, California Healthy Kids Survey. (2017). Accessed via kidsdata.org
[33] Solano Youth Voices. (2019). "Elevating Youth Voice in Solano County Policymaking"
[34] Centers for Disease Control and Prevention. (2019). https://www.cdc.gov/violenceprevention/suicide/index.html
[35] Centers for Disease Control and Prevention. (2019). https://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm
[36] Office of Statewide Health Planning and Development. (2016). Hospital discharge data

What Disparities Exist?

Solano County Behavioral Health Service Utilization Data

In fiscal year 2017-2018, Solano County Behavioral Health (SCBH) served 6,681 children and adults from a diverse array of cultures.

SCBH reports that Hispanic/Latino, Black/African American, and Asian/Pacific Islander populations show the greatest disparities between the percentage of eligible residents and those using mental health & substance abuse services, and thus are currently underserved in the County.[37]



SCBH conducted a survey among adult community members about their interactions and impressions regarding the County's mental health system of care. 1 in 2 participants expressed a preference for receiving supportive services from individuals who represent their culture. Many shared rationales for how this could be helpful for making them feel comfortable and how it could attribute to quality treatment. 1 in 4 participants expressed having difficulties finding services in their preferred language or culture.[37]

Example of Successful Collaboration Addressing Community Mental Health

Solano County Behavioral Health (SCBH) conducts targeted outreach initiatives to unserved and underserved individuals and communities who face disparities in accessing mental health services. SCBH has three different outreach teams which focus on the Hispanic/Latino, Filipino, and homeless populations in Solano County. These programs are respectively named Hispanic Outreach and Latin Access (HOLA), Kaagapay, and Accessible Resources and Care for the Homeless (ARCH).

SOLANO HEALS

Solano HEALS (Health Equity for African American/Black Lives in Solano) is a grass roots organization aiming to improve birth outcomes for African American/Black babies and their families in Solano County through various objectives, which include addressing the mental health needs of African American/Black women of reproductive age between ages 15 to 44. Solano HEALS is producing a free online mental health toolkit that will provide resources, screening tools, and referrals for services. The toolkit is being evaluated by mental health clinicians, local medical school instructors, and community members.

[37] Solano County Behavioral Health. (2019). "2018-2019 Cultural Responsivity Plan: Culturally & Linguistically Appropriate Services Annual Update". https://www.solanocounty.com/documents/CulturalResponsivityPlanSolanoMHP2019.pdf

Priority Problem #5: Perinatal Mental Health

Why Is This Important?

Perinatal depression is one of several mood and anxiety disorders that commonly affect women during or after pregnancy, from conception to one year postpartum. These mood and anxiety disorders include anxiety disorders, postpartum psychosis, obsessive compulsive disorder, and post-traumatic stress disorder.[36,39]

Depressive symptoms are common both during pregnancy (14.1%) and postpartum (13.5%). Depression during or after pregnancy is a potential risk to both mother and baby. Depression during pregnancy increases the risk of chronic depression and suicide once delivery has occurred.[40]

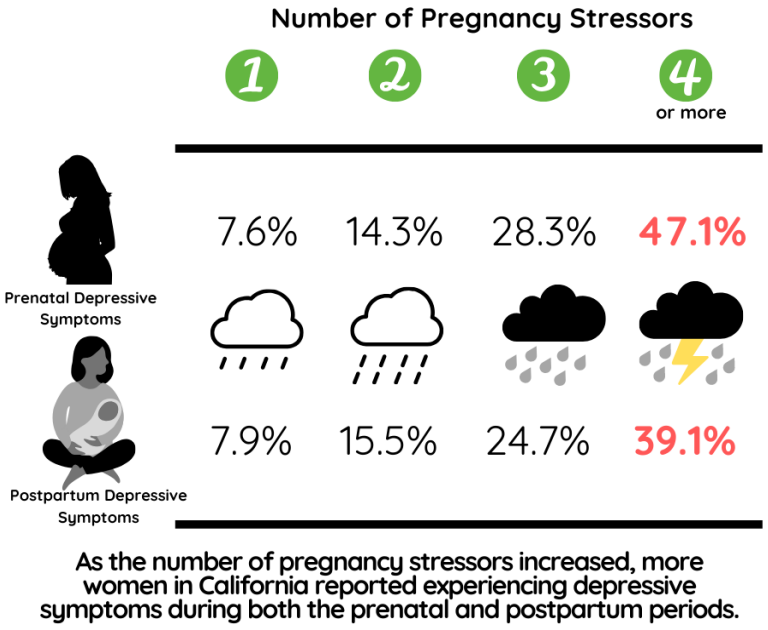
Depression that occurs during pregnancy also increases the risk of preeclampsia (new onset elevated blood pressure), low birthweight, and pre-term birth. Depression in mothers can also impact women's breastfeeding practices and ability to bond with their infants and increases the risk of long-term cognitive and emotional development problems in children.[40]

The Centers for Disease Control and Prevention research indicates that 1 in 9 women experience symptoms of postpartum depression (depression up to one year after delivery).[41] While all women are at risk for symptoms of perinatal depression, women who have low incomes, have experienced adverse childhood experiences (ACEs) or experience hardships in pregnancy are at heightened risk of symptoms of depression.[40]

What Are We Measuring?

Solano County gathers data from the Maternal and Infant Health Assessment (MIHA) Survey, an annual, statewide-representative survey of women with a recent live birth in California. The MIHA Survey reports that about 1 in 7 Solano County women report prenatal depressive symptoms (14.6%) and about 1 in 6 women report postpartum depressive symptoms (15.9%).

Statewide, the MIHA survey also finds that pregnancy stressors, which are significant life events or conditions during pregnancy that include intimate partner violence, lack of social support, separation, housing insecurity, and job loss, can lead to biological stress responses associated with depression. As the total number of stressors increase during pregnancy, the prevalence of prenatal and postpartum depressive symptoms also increases.[40]



As the number of pregnancy stressors increased, more women in California reported experiencing depressive symptoms during both the prenatal and postpartum periods.

Source: California Dept. of Public Health, MIHA Data Brief, 2018

[39] Michael O'Hara and Katherine Wisner. (2014). "Perinatal Mental Illness: Definition, description and aetiology". *Best Practice & Research Clinical Obstetrics & Gynaecology*, Volume 28, Issue 1

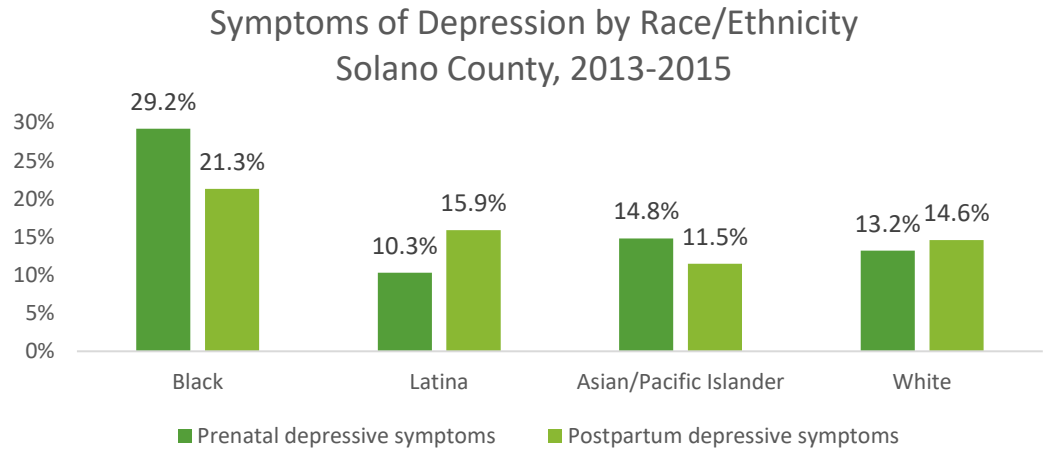
[40] California Department of Public Health. (2019). Maternal and Infant Health Assessment Data Brief, Summer 2018.

[41] Centers for Disease Control and Prevention. (2019). https://www.cdc.gov/reproductivehealth

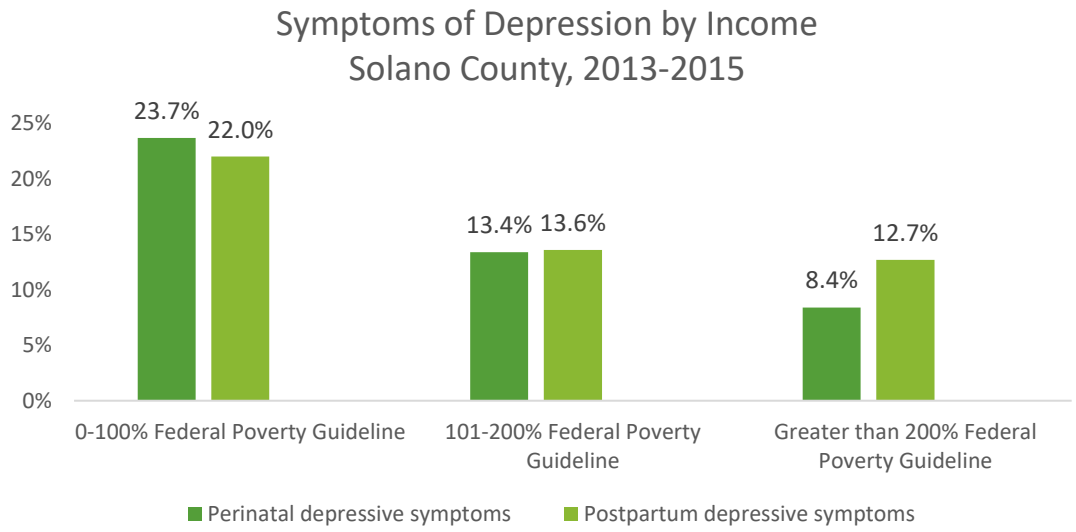
Childhood stressors (or ACEs) also have a cumulative effect on the prevalence of prenatal and postpartum depression among women in California, such that 25% of women with 4 or more childhood hardships reported prenatal and postpartum depressive symptoms compared to 9% of women with zero reported childhood hardships.[40]

What Health Disparities Exist?

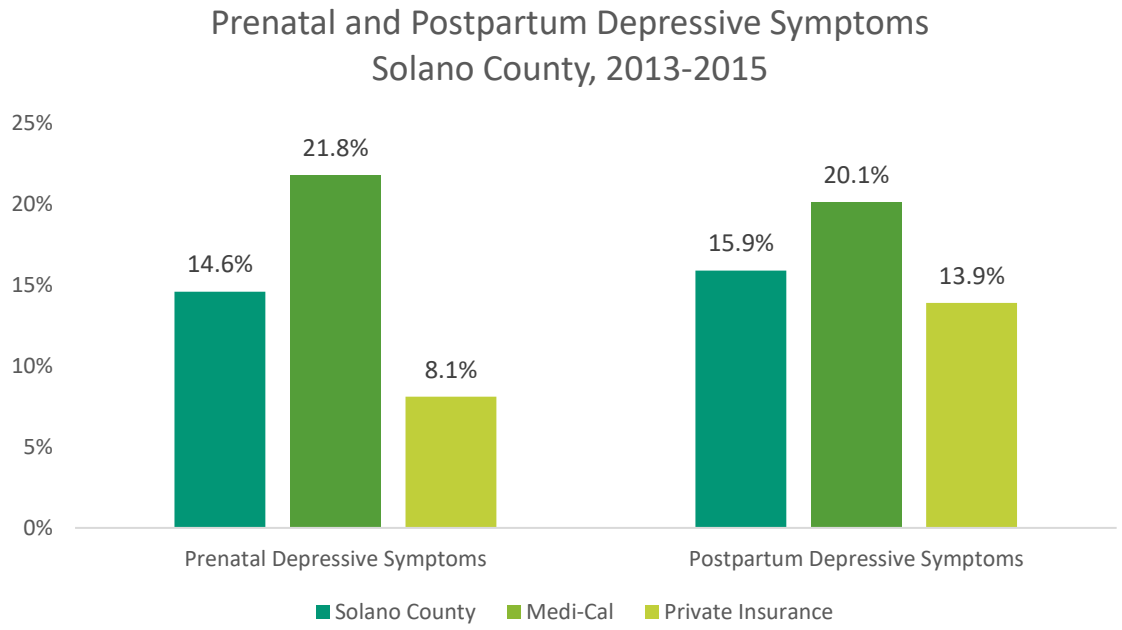
The MIHA Survey reports that African American/Black women in Solano County experience higher rates of prenatal and postpartum depressive symptoms. About 3 in 10 pregnant African American/Black women experienced prenatal depressive symptoms, indicating a percentage that is nearly 3 times that of Latina women, about 2 times that of Asian/Pacific Islander women, and over 2 times that of White women. Solano's rate for African American/Black women reporting prenatal and postpartum depressive symptoms from 2013 to 2015 is also higher than the state rates of 19.9% and 15.6% respectively for reported prenatal and postpartum depressive symptoms.



The MIHA Survey reports that Solano County follows a similar trend as the state, in that perinatal and postpartum depressive symptoms are the highest among the lowest income women and this prevalence declines with increased income.



The MIHA survey also reports that women insured under Medi-Cal both in Solano County and in the state of California reported higher levels of depressive symptoms during pregnancy and after delivery compared to women with private insurance.



Example of Successful Collaboration Addressing Perinatal Mental Health

Solano County's MCAH Bureau offers several home visiting programs which support mental health screenings for women and provide opportunities to refer mothers to services. These include the Adolescent Family Life Program (AFLP), Black Infant Health Program, Nurse Family Partnership, and Healthy Families Solano. For more information on these programs, please visit https://www.solanocounty.com/depts/ph/mch/.

In collaboration with the Solano County Behavioral Health Department, MCAH Bureau has implemented Solano's Mothers and Babies program, which conducts mental health screenings using validated tools and teaches mood management. Data from the 2018-2019 fiscal year reveal that clients of the Mothers and Babies program have scores indicating less risk for perinatal depression and anxiety and report reduction in depressive symptoms and improved functioning through skills learned through treatment.[43]

The Mental Health Services Act (MHSA) funding also allowed Solano County to hire a mental health clinician to support pregnant women through in-home mental health services. In a short amount of time, the program received 35 referrals.

[43] Solano County Mental Health Service Act Annual Outcome Reporting Form, Fiscal Year 2018/2019

Priority Problem #6: Community Substance Use

Why Is This Important?

Substance use among pregnant women and adolescents occurs in the context of norms of community use. In addition, high rates of substance use in the community correlate with other social problems that impact the quality of life for children and families. National findings from the Substance Abuse and Mental Health Services Administration (SAMHSA)'s 2018 National Survey on Drug Use and Health include the following:[44]

- In 2018, 3 out of 5 Americans aged 12 or older reported using any substance in the past month.
- **Alcohol**: 1 in 11 adolescents reported alcohol use in the past month.
- **Tobacco:** Cigarette use generally declined between 2002 and 2018 across all age groups. The national survey does not ask separate questions about vaping of nicotine. In Fall 2019, the Centers for Disease Control and Prevention (CDC) reported an outbreak of lung injury associated with the use of e-cigarette or vaping products.[45]
- **Illicit Drugs:** Nearly 1 in 5 Americans aged 12 or older reporting using an illicit drug in the past year.
    - Marijuana was the most common form of illicit drug use in the United States.
    - Prescription pain reliever misuse was the second most common form of illicit drug use in the United States. In 2018, 10.3 million people aged 12 or older misused opioids in the past year.
    - Misuse of and addiction to opioids, including prescription pain relievers, heroin, and synthetic opioids such as fentanyl, is a serious national crisis that affects public health as well as social and economic welfare.

DEFINITIONS

Substance: Alcohol, tobacco, or illicit drugs

High-risk substance use: Any use by adolescents of substances with a high risk of adverse outcomes such as injury, criminal justice involvement, school dropout, and loss of life

E-cigarette: Electronic cigarette which works by heating a liquid to produce an aerosol that is inhaled into the lungs. Also called vapes, e-hookahs, vape pens, tank systems, mods, and electronic nicotine delivery systems (ENDS)

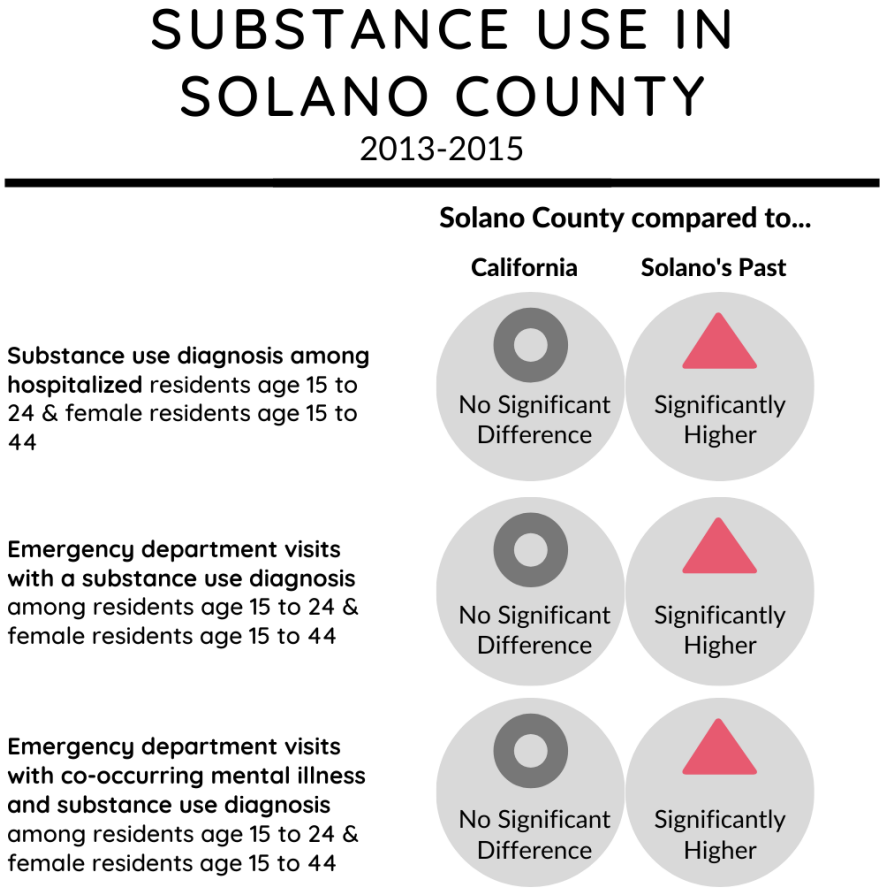
Substance Use Among Teenagers

The American Academy of Pediatricians (AAP) and Centers for Disease Control and Prevention (CDC) recommends screening for substance use in children, starting at 9 years of age.[46] Risks of substance use among teenagers include changes in growth and development, especially brain development, and occurrences of frequently associated risky behaviors such as unprotected sexual intercourse and dangerous driving. Youth with substance use disorders also experience higher rates of physical and mental illnesses, diminished overall health and well-being, and potential

[44] Substance Abuse and Mental Health Services Administration. (2019). "Key Substance Use and Mental Health Indicators in the United States: Results from the 2018 National Survey on Drug Use and Health"
[45] Centers for Disease Control and Prevention. (2019). Outbreak of Lung Injury Associated with the Use of E-Cigarette, or Vaping, Products. https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html
[46] Centers for Disease Control and Prevention. (2019). Teen Substance Use and Risks. https://www.cdc.gov/features/teen-substance-use/index.html

progression to addiction.[47] Substance use among teenagers can contribute to the development of adult chronic health problem such as heart disease, high blood pressure, and sleep disorders. The AAP and CDC also state that the earlier teenagers start using substances, the greater their risk of continuing to use alcohol and other substances and developing alcohol and substance use problems later in life.[46]

What Are We Measuring?



Local rates of substance use are tracked by the number of people who visit the emergency room or who are hospitalized and are given a substance use diagnosis. The average rate of substance use diagnosis among Solano youth age 15 to 24 who visited the emergency room or were hospitalized has increased significantly within the last ten years, from 618.1 per 100,000 people in 2004-2006 to 728.5 per 100,000 people in 2013-2015. The same rates have also increased for Solano women of reproductive age, age 15 to 44, within the last ten years.

Substance use and mental health issues often occur together. In the last seven years, the rate of co-occurring mental health and substance abuse diagnoses for Solano youth age 15 to 24 and women of reproductive age 15 to 44 also increased significantly. This is similar to the pattern seen for the state of California as a whole.

Opioids

Preliminary data reveals that there were 110 emergency department visits, 24 hospitalizations, and 19 deaths related to any opioid overdose in Solano County in 2018.[48]

277,436 prescriptions for opioids, excluding buprenorphine which treats opioid addiction, were written in Solano County in 2018. The annual prescribing rate was 621.2 per 1,000 residents, indicating a 20% decrease in prescribing from 2016.[48]

[47] Centers for Disease Control and Prevention. (2019). High-Risk Substance Use Among Youth. https://www.cdc.gov/healthyyouth/substance-use

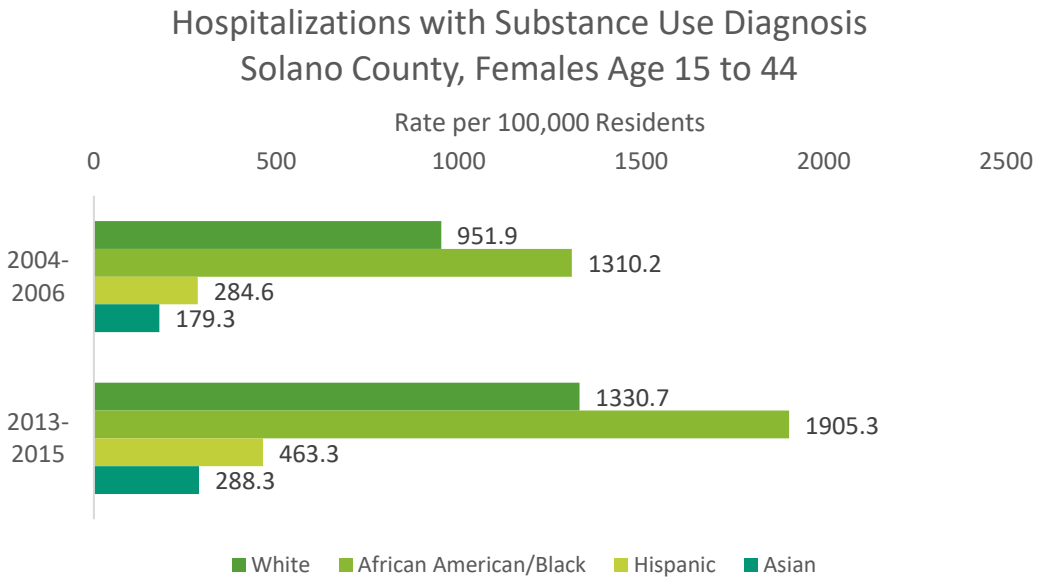
[48] California Department of Public Health. (2019). https://discovery.cdph.ca.gov/CDIC/ODdash/

What Health Disparities Exist?

Substance use affects different communities very differently. Community substance use is shaped by factors such as employment and housing stability, insurance status, proximity to health care services, and culturally responsive care, all of which have an impact on behavioral health outcomes.

Advancing health equity involves ensuring that everyone has a fair and just opportunity to be as healthy as possible. This also applies to substance use. In conjunction with quality services, this involves addressing social determinants.

Local rates of substance use are tracked by the number of people who visit the emergency room or who are hospitalized and are diagnosed with substance use issues. In Solano County, rates of substance use diagnosis for pregnant women and teens have been much higher for Whites and Blacks, and lower for Hispanics and Asians. These disparities potentially reflect both different patterns in use as well as differences in willingness to disclose use or to seek treatment.



Source: Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data

Examples of Successful Collaboration Addressing Community Substance Use

Partnership HealthPlan of California (PHC) is the Medi-Cal Managed Care agency in Solano County. According to PHC's 2018 Community Report, Partnership members are covered for certain outpatient use disorder services. PHC's Wellness and Recovery Program addresses alcohol and drug addictions as part of their overall service delivery system, which includes several services that were not previously available to many members, including withdrawal management, residential care, and case management. The full array of substance use treatment services are available to Partnership members in Solano County. Solano providers are encouraged to address addiction as part of their ongoing services, offer patients combined mental health and substance use counseling if addiction is contributing to anxiety or depression, administer medication assisted treatment in primary care and other settings, and work with emergency departments and hospitals to help transition members with addiction to community treatment and services.

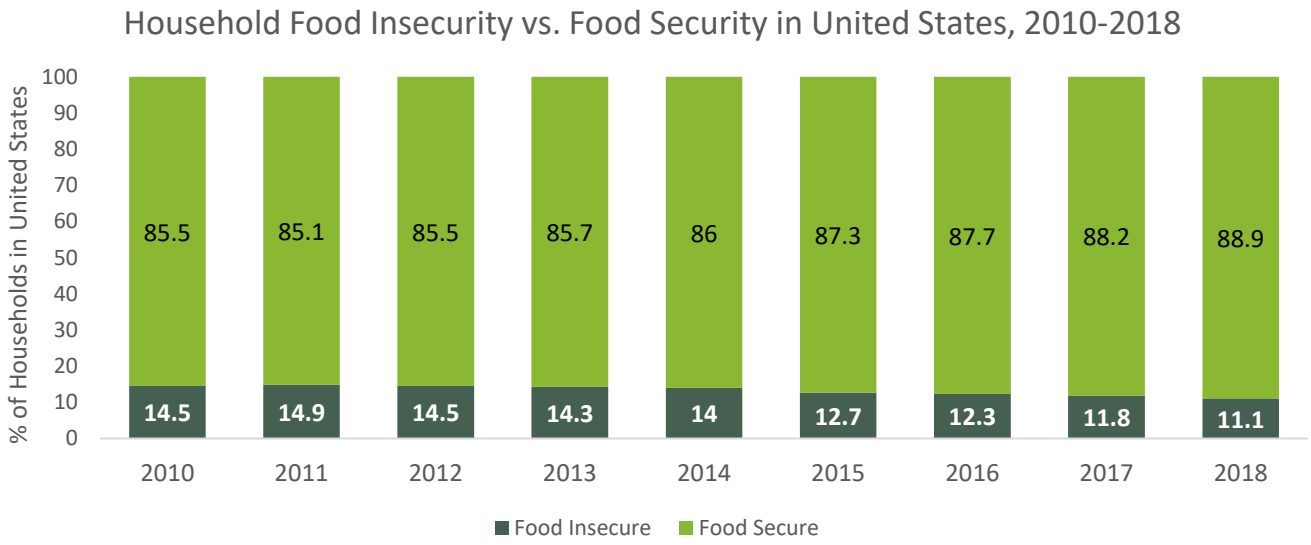
Priority Problem #7: Food Security

Why Is This Important?

Good nutrition is a critical component of good health. In 2018, 14.3 million (or 11.1%) of households in the United States reported being "food insecure" at some time during the year, defined as "uncertain of having, or unable to acquire, enough food to meet the needs of all of their members because they had insufficient money or other resources for food." [49,50] Half of food insecure households nationwide participated In one or more of the three largest Federal food and nutrition assistance programs (Supplemental Nutrition Assistance Program or formerly known as food stamps; Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); and the National School Lunch Program) during the month prior.[51]

Income, employment, race/ethnicity, and disability are contributing factors to food insecurity. Rates of food insecurity were higher than the national average for the following groups:[52]

- Households with incomes near or below the Federal Poverty Line
- All households with children
- Households with children headed by single women or men
- Women and men living alone
- Black and Hispanic-headed households
- Households in principal cities



Source: United States Department of Agriculture, Household Food Security Annual Report

According to the U.S. Census Bureau, 1 in 4 (or 24.9%) single mothers in Solano County live in poverty. Meanwhile, 2 in 5 children in Solano County (or 37.4%) between ages 0 to 18 live in poverty. Additionally, the California Department of Education reports that half of all children enrolled in schools in Solano County receive free or reduced-price meals.

[49] Nord, Andrews, and Carlson. (2005). Household Food Security in the United States, 2005. https://www.ers.usda.gov/
[50] United States Department of Agriculture. (2019). Food Security in the United States. https://www.ers.usda.gov
[51] Coleman-Jensen, Rabbitt, Gregory, and Singh. (2019). Household Food Security in the United States in 2018. https://www.ers.usda.gov
[52] Food Bank of Contra Costa & Solano. (2018). Hunger Study 2018

According to the Food Bank of Contra Costa & Solano's Hunger Study 2018 report, instead of paying for groceries, 2 in 5 households chose to pay for utilities, transportation, or rent/mortgage, while 1 in 3 households chose to pay for medicine and medical care. Additionally, the Hungry Study reports that 2 in 5 people bought the cheapest available food every month because a healthier choice was more expensive, and 1 in 5 people ate less than they should, or skipped meals every month because they could not afford food.[52]

Access to affordable, healthy, and nutritious foods can become a problem for households who live in neighborhoods with limited access to a full-service supermarket or grocery store, indicating a potential "food desert". According to the epidemiologists at Solano County Public Health Division, about half of Solano residents live in food deserts.

What Are We Measuring?

According to the Maternal and Infant Health Assessment (MIHA) survey, 1 in 5 women (or 19%) who deliver a live birth in Solano County experience food insecurity during pregnancy. Solano's rate of food insecurity during pregnancy is slightly above the state rate of 15.6% but does not demonstrate a significant difference.[53]

What Disparities Exist?

Children who experience food insecurity begin life at a disadvantage and face higher risks of health conditions like anemia (low blood count) and asthma. Children who face hunger can also experience difficulties in school, such as repeating a grade level and experiencing developmental impairments in language and motor skills and are more likely to have social and behavioral problems.[54]

Disabled adults may be at a higher risk for food insecurity due to limited employment opportunities and health care-related expenses that reduce the income available to purchase food. [55]

Families living in rural areas face challenges such as food deserts, job opportunities focused on low-wage industries, and unemployment or underemployment, making hunger in rural areas a unique challenge.[54]

[53] California Department of Public Health. (2019). Maternal and Infant Health Assessment Data Brief, Summer 2018
[54] Feeding America. (2019). https://hungerandhealth.feedingamerica.org/understand-food-insecurity/
[55] Coleman-Jensen & Nord. (2013). Food insecurity among households with working-age adults with disabilities. https://www.ers.usda.gov

African American households have significantly lower household incomes compared to White non-Hispanic households and are also more than twice as likely to face hunger.[54]

Latino households experience higher food insecurity rates than the general population, are less likely to receive help from federal nutrition programs and are at greater risk of development diet-related illnesses.[54]

Examples of Successful Collaboration Addressing Food Security

The Solano County Mobile Food Pharmacy program, funded by a grant from the Yocha Dehe Wintun Nation, delivers fresh fruits and vegetables to the different Family Health Services clinics throughout Solano County on a weekly schedule, simplifying access to healthy food. Family Health Services patients receive a prescription for free fresh produce during their regular appointments and can learn about healthy cooking.

The goal of the Mobile Food Pharmacy is to improve health outcomes by promoting healthy eating, addressing food insecurity, and increasing attendance at clinic appointments.

Solano County's Women, Infant and Children (WIC) nutrition program benefits income-eligible pregnant, breastfeeding, and non-breastfeeding women and children under the age of a five who have a nutritional need. WIC is a federally-funded program and is administered by the California Department of Health Services.

Solano WIC provides assistance with purchasing supplemental nutritious foods. WIC also provides nutrition assessment, nutrition education, and breastfeeding education to clients. WIC also provides referrals to other services, including health, substance use counseling or treatment, housing, income, food, domestic violence services, dental health services, and child support services.[56]

[56] Solano County Public Health Division, WIC Program. (2019). https://www.solanocounty.com/depts/ph/nsp/wic/services.asp

Priority Problem #8: Care Coordination

Why Is This Important?

Care Coordination is defined as the organization of patient care between two or more participants involved in a patient's care to facilitate the appropriate delivery of health care services.

Even when children and families have access to medical care, challenges remain in accessing the services they need. Patients may have needs that go beyond care received in their doctor's office – they may need help at home, special equipment, or coordination with education services, behavioral health needs, drug treatment, insurance companies, assistance programs, or any of a number of other systems. Care may be needed from multiple doctors, specialists, or hospitals. Records may not flow easily between these systems and communication may be limited, leaving families to do the work of connecting the dots.

These challenges may be present for any family, but they are especially acute in the case of children with medical needs beyond standard well-child care. This population, often referred to as Children and Youth with Special Health Care Needs, often have particularly complex care. Care coordination is especially important for children in this group, who are at risk for chronic physical, developmental, behavioral, or emotional conditions.[57] In Solano County, 11.8% of public school children are enrolled in special education. 11.9% of these public school children have an autism diagnosis. 3.5% of children ages 0 to 18 years in Solano County have one or more major disabilities.

There are 1,648 children and youth with special health needs enrolled into California's Children Services (CCS), which is a state program for children up to 21 years old with certain diseases or health problems. CCS connects children with doctors and trained health care providers who are able to care for children and youth with special health care needs.[58]

Care coordination with primary care pediatrics practices is associated with decreased unnecessary office and emergency department visits, enhanced family satisfaction, and reduced unplanned hospitalizations and emergency department visits.[59] For Children and Youth with Special Health Care Needs, care coordination improves satisfaction with services and improved ratings of child health and family functioning.[60]

> *"*My child is struggling in school. She needed hearing tests. They call the audiologist, and I have to go there on the bus. I am waiting, waiting. Her school says they need a form from her doctor, so she can get services. The doctor says they have not had results from the audiologist. The audiologist says they already faxed results. I am calling and calling on the phone all day. These people do not talk to each other*."* – *Solano County parent*

Successful care coordination takes into consideration the continuum of health, education, early child care, early intervention, nutrition, mental/behavioral/emotional health, community partnerships, and social services that are needed. It acknowledges the importance of language and culture. Care plans are created and implemented jointly with the family and children themselves, along with input from different members of the team caring for a child. The care plans explicitly state goals that matter to both families and care partners.[59]

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[57] HRSA Maternal and Child Health. (2019). https://mchbgrandchallenges.hrsa.gov/challenges/care-coordination-cshcn
[58] California's Children Services. https://www.dhcs.ca.gov/services/ccs
[59] Turchi et al. (2009). Care coordination for CSHCN: associations with family-provider relations and family/child outcomes. *Journal of Pediatrics*
[60] Farmer et al. (2011). Consultative care coordination through a medical home for CSHCN: a randomized controlled trial. *Maternal Child Health Journal*

What Are We Measuring?

Care coordination is difficult to measure, and different families may have very different needs. National data documented a decrease in parents reporting receipt of care coordination services over time, from 47% in 2005-2006 to 43% in 2009-2010, which is the latest available data.[61]

Information about the ability to access coordinated care in Solano County was gathered via a series of interviews with parents and providers.

Transportation barriers and lack of medical specialists are a problem for Solano Children and Youth with Special Health Care Needs

Issues raised by key informants during the needs assessment process include the fact that children and youth with special health care needs (CYSHCN) are "complex and have multiple needs, across the social spectrum" and "some are low income and have little social support." Transportation was mentioned as a persistent but improving barrier to care, following the inclusion of medical and non-medical transportation as a Medi-Cal benefit starting July 2019. Also noted was a lack of pediatric specialists, including pediatric neurologists, hematologists, and nutritionists. Additionally, payment systems can be complex, especially for durable medical equipment, so that "parents sometimes get bills and are sent to collections when they aren't supposed to." Finally, the paperwork required to enroll into CCS services is dense, cumbersome, and often difficult to understand for parents at lower literacy levels.

Telemedicine was noted as a potentially useful tool; however, it can be difficult for providers to be reimbursed for the service. Health information exchange between health systems was also mentioned as another barrier to quality care for CYSCHN.

What Disparities Exist?

While access to coordinated care can be challenging for any family, some families are especially vulnerable. Some groups noted to have particular challenges included children with mental health problems, families with multiple children with special health care needs, and first-time parents, who may need more assistance navigating the complex healthcare system. Another vulnerable group mentioned was foster children, particularly foster children requiring psychotropic medications and foster children on probation. Barriers to care for these groups include high caseloads for systems supporting foster children, the "siloing" of systems of care which hinders sharing of resources and successful referrals between programs, and the overall lack of placements for foster children in general.

Families who speak languages other than English, who have no insurance or are underinsured, and who are low income also have many challenges receiving coordinated care.

Examples of Successful Collaboration Addressing Care Coordination

Help Me Grow Solano

Help Me Grow Solano is a local organization that links parents with children 5 years and under to community services, such as child care, basic needs, and developmental and mental health screenings through the assistance of Family Navigators.

[61] Centers for Disease Control and Prevention. (2015). https://www.cdc.gov/nchs/slaits/cshcn.htm

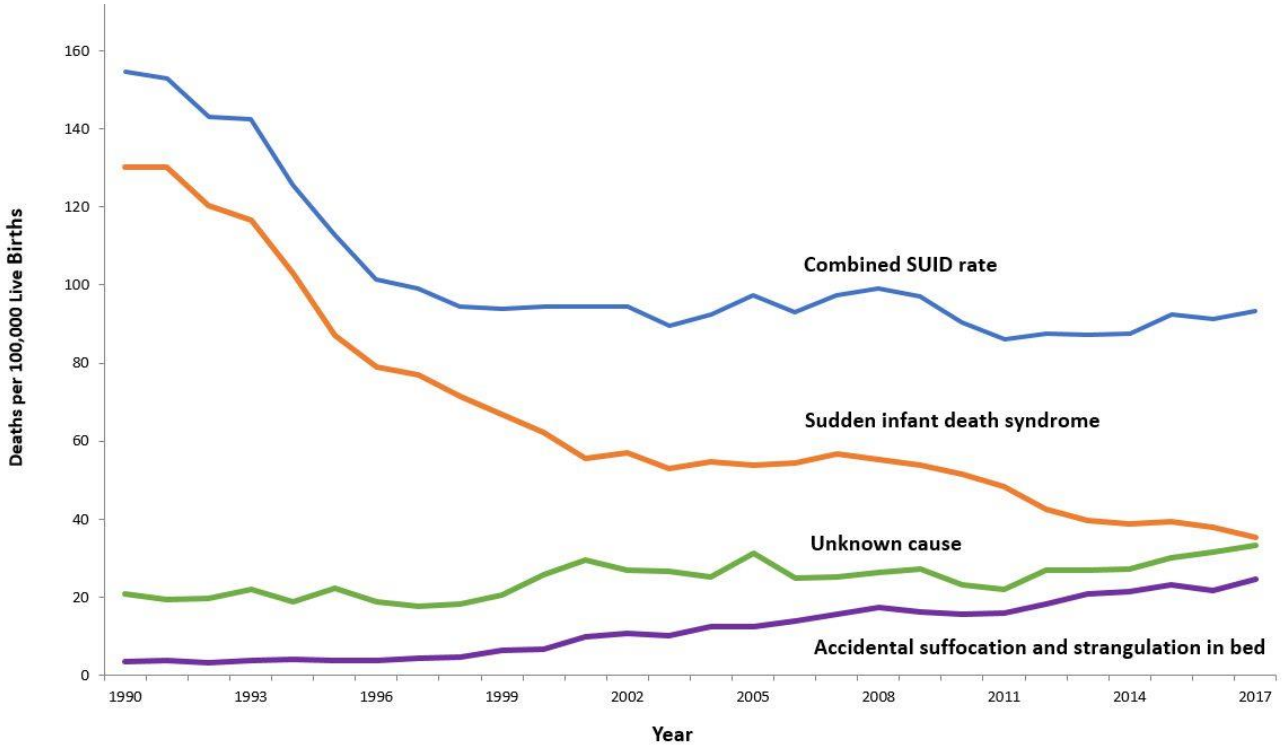
Priority Problem #9: SIDS/SUID

Why Is This Important?

Sudden Infant Death Syndrome (SIDS) is the sudden unexpected death of a healthy infant below one year of age, sometimes used interchangeably with Sudden Unexpected Death of an Infant (SUDI) or SUID (Sudden Unexpected Infant Death). SIDS is the leading cause of death of infants between 1 month and 1 year of age in the United States. In 2017, there were 2,700 sudden and unexpected infant deaths (SUID) in the United States among infants less than a year old.[62]

SIDS happens unexpectedly, has no prior symptoms, and often occurs during sleep. Although the causes of SIDS are unclear, known risk factors for SIDS include social factors such as poverty, medical factors such as low birth weight and prematurity, and individual behaviors such as placing baby on stomach to sleep, bed sharing or co-sleeping, placing soft objects in a baby's sleep environment, and smoking near or around a baby.

The rate of SIDS has decreased significantly since the late 1990's, following the release of the American Academy of Pediatrics' Safe Sleep recommendations in 1992 and the initiation of the national "Back to Sleep" education campaign in 1994, instructing families to place infants to sleep on their backs and follow other risk reduction practices including placing babies on their backs to sleep, room sharing without bed sharing, keeping a safe sleep environment free of soft objects, breastfeeding, prenatal care, and avoiding alcohol, tobacco, and drug use during and after pregnancy.[63]

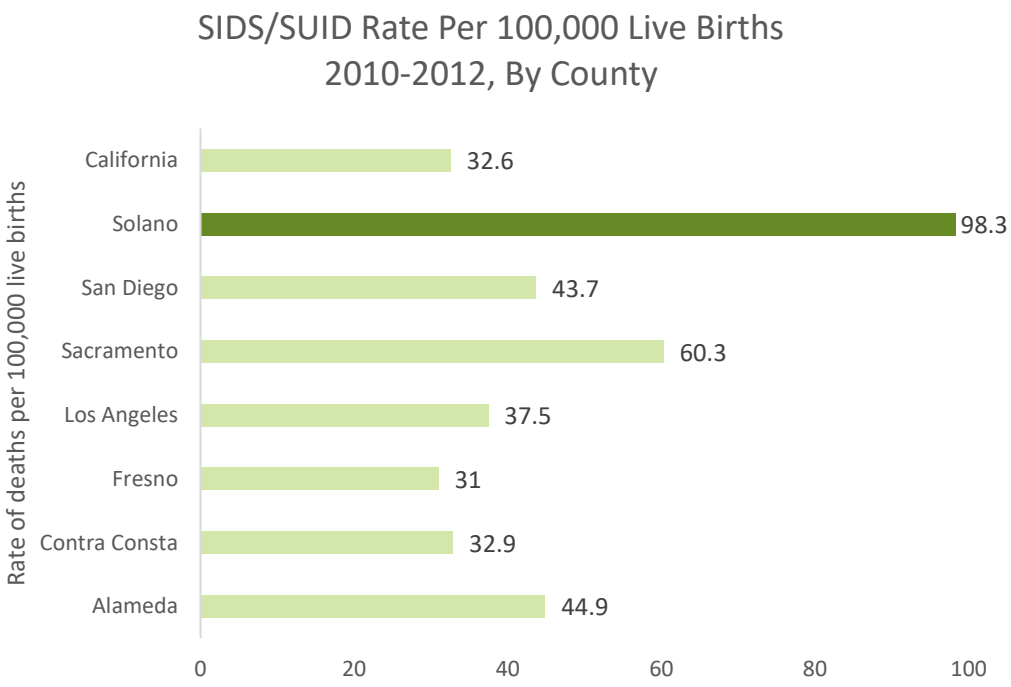


Source: Centers for Disease Control & Prevention/National Center for Health Statistics, National Vital Statistics System, Mortality Files

Since 1999, declines in SIDS and SUID have slowed. Additionally, in recent years, SUID is being classified less often as SIDS, and more often as accidental suffocation or strangulation in bed or unknown cause.[62]

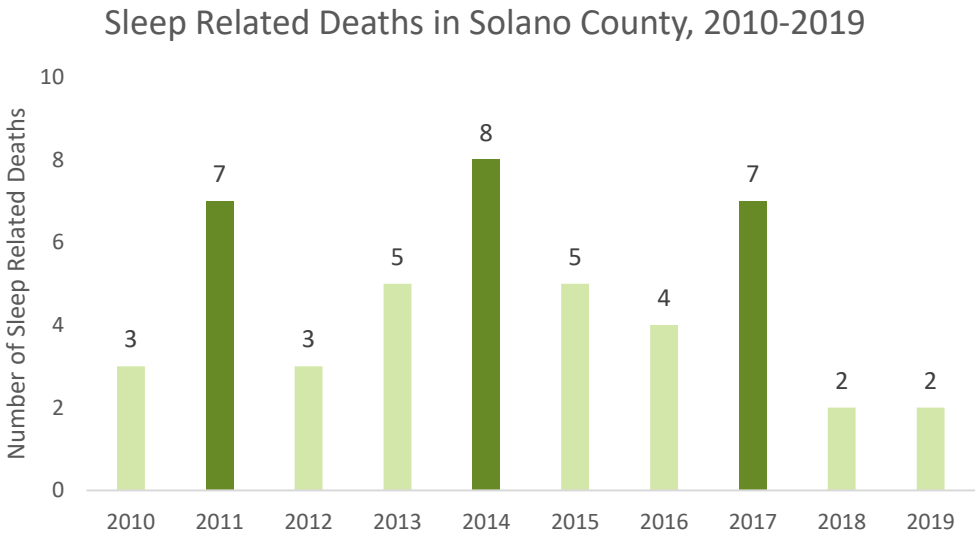
[62] Centers for Disease Control and Prevention. https://www.cdc.gov/sids/data.htm
[63] Eunice Kennedy Shriver National Institute of Child Health and Human Development. https://www.nichd.nih.gov/health/topics/sids

What Are We Measuring?



Solano County's SIDS rate has remained historically high. According to the latest available data shared by the state Maternal Child Adolescent Health program, Solano's SIDS rate is 98.3 per 100,000 live births. This is significantly greater than the state rate (32.6 per 100,000 live births). Solano's rate is also greater than larger counties such as Los Angeles, Alameda, Sacramento, and Contra Costa County.[64]

Source: California Birth and Death Statistical Master Files 2012-2012, California Department of Public Health, Center for Family Health, Maternal, Child and Adolescent Health Division



The number of sleep related deaths fluctuates every year, typically ranging from 2 to 7 deaths in any given year. In the graph to the left, preliminary data for 2019 is displayed. Years with higher number of deaths are illustrated in dark green in the chart to the left.

Source: Solano County Vital Statistics, Death Files, 2010-2019

[64] California Department of Public Health, Maternal Child Adolescent Health Division. "California Birth and Death Statistical Master Files 2010-2012"

What Health Disparities Exist?

Nationwide, SIDS rates per 100,000 live births for American Indian/Alaska Native infants (96.2) and non-Hispanic African American/Black infants (74.4) was greater than that of the non-Hispanic Caucasian/White infants (39), Hispanic infants (20.8), and Asian/Pacific Islander infants (14.1). As a result, American Indian/Alaska Native and African American/Black infants are recognized as having the greatest risk for SIDS deaths.[65]

Race/Ethnicity Disparities in SUID/SIDS Deaths

SIDS deaths in Solano County follow the national trend. Native Indian/Alaska Native and African American/Black infants are more likely to die due to SIDS compared to their Caucasian/White, Hispanic, and Asian/Pacific Islander counterparts. African American/Black infants are two times more likely to die before their first birthday compared to White infants.[66]

Examples of Successful Collaboration Addressing SIDS/SUID

Solano's Maternal Child Adolescent Health Bureau (MCAH) hosts a variety of SIDS Awareness activities throughout the year and especially during the month of October. Activities include educational social media campaigns emphasizing safe sleep environments and back sleeping, a collaborative Facebook Live event with the Solano County Sheriff Coroner's Office and Vacaville Fire Chief, public display cases, and annual Board of Supervisors resolutions acknowledging October as SIDS Awareness Month. MCAH also works with local programs, collaboratives, organizations, and agencies to promote safe sleep environments, back sleeping, and risk reduction practices.

[65] Centers for Disease Control and Prevention. (2019). Sudden Unexpected Infant Death and Sudden Infant Death Syndrome – Data and Statistics. https://www.cdc.gov/sids/data.htm

[66] Solano County Vital Statistics, Death Files

Priority Problem #10: Infant Mortality

Why Is This Important?

The infant mortality rate is the number of infant deaths for every 1,000 live births. The infant mortality rate is not only a measure of the risk of infant death, but it is also widely used as a measure of community health status, poverty and socioeconomic status, and availability and quality of health care and medical technology. Infant mortality refers to the death of an infant before his or her first birthday.

In 2017, the infant mortality rate in the United States was 5.8 deaths per 1,000 live birth.[67] This rate represents over 22,000 infant deaths across the nation, with the five leading causes as follows:

1. Birth defects (118.8 infant deaths per 100,000 live births)
2. Preterm birth and low birth weight (97.2 infant deaths per 100,000 live births)
3. Maternal pregnancy complications (37.1 infant deaths per 100,000 live births)
4. Sudden Infant Death Syndrome or SIDS (35.4 infant deaths per 100,000 live births)
5. Unintentional injuries (34.2 infant deaths per 100,000 live births)

Nationally, African American infants and American Indian/Alaska Native infants are over two times more likely to die before their first birthdays, compared to Hispanic and Non-Hispanic White infants. This is also true of California. As a whole, California's infant mortality rate is lower than that of many other states, has improved slightly over the last decade, and meets the Healthy People 2020 goal.[68] However, significant disparities between race/ethnic groups persist, similar to those seen at the national level.

What Are We Measuring?

Infant mortality rates are calculated by looking at the number of deaths of infants less than a year old compared to the number of live births each year. Because the total number of infant deaths in Solano County is relatively small, these rates tend to fluctuate from year to year. However, overall the rate of death has remained statistically similar over the last ten years. From 2013 to 2015, Solano County's infant mortality rate was 5.8 deaths per 1,000 live births, higher than the state average.[69]

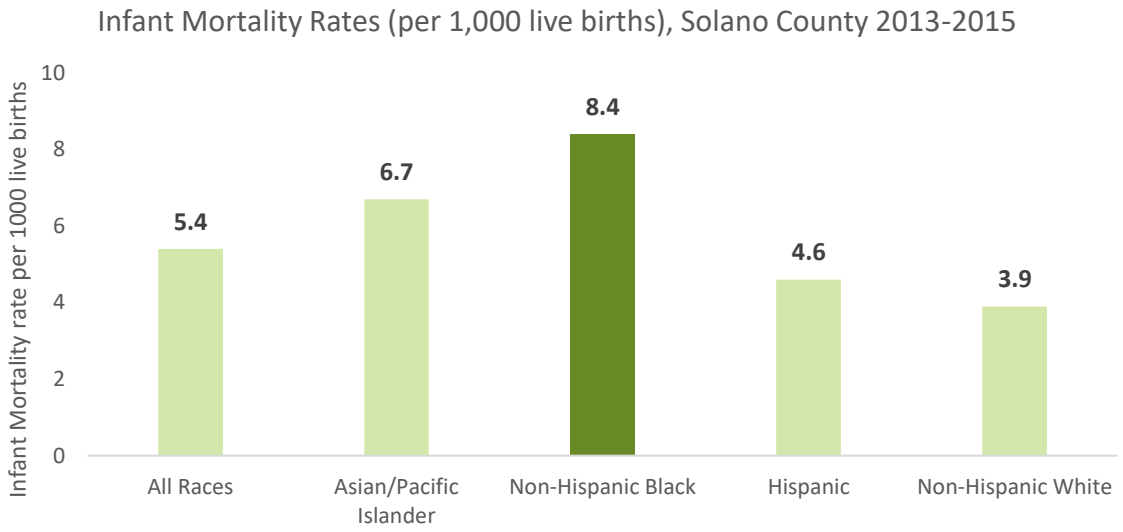
As in the state of California and the nation as a whole, the rate of death for Black infants is higher than that for Whites. The strongest contributor to higher rates of infant mortality for Black infants is higher rates of premature birth and very low birth weight. These, in turn, are driven by social determinants of health such as income, access to health care, toxic stress, and racism.

What Health Disparities Exist?

When data is aggregated (or viewed as a group), Solano's infant mortality rate is 5.4 infant deaths per 1,000 live births, which meets the Healthy People 2020 goal. However, when race/ethnicities data is disaggregated (or separated),

[67] National Center for Health Statistics, National Vital Statistics System. (2018). Mortality in the United States, 2017.
[68] Healthy People 2020. Maternal, Infant, and Child Health. https://www.healthypeople.gov/
[69] California Dept. of Public Health, Birth and Death Statistical Master Files; National Center for Health Statistics

disparities in infant mortality rates are revealed. In particular, African American/Black infants are over two times more likely to die before their first birthdays compared to White infants. This is similar to the national and state trend of disparities in infant mortality among non-Hispanic African American/Black infants. Additionally, Asian/Pacific Islander infants in Solano County are at 1.7 times more likely to die before their first birthdays compared to White infants.



Source: California Department of Public Health, Center for Family Health, Maternal, Child and Adolescent Health Program. (2019). Solano County's Health Status Profile for 2018.

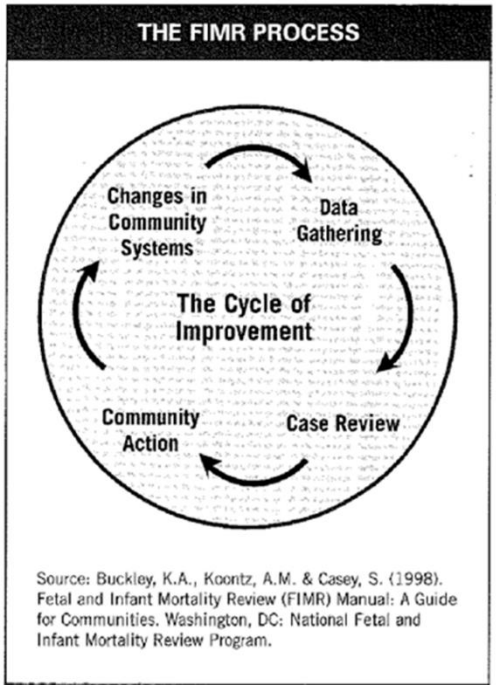
Example of Successful Collaboration Addressing Infant Mortality

Solano County's Fetal and Infant Mortality Review (FIMR) Program reviews specific cases of fetal and infant deaths in order to understand what issues relate to fetal and infant loss, utilize information to reduce fetal and infant mortality, enhance delivery systems and resources, and promote equity in health outcomes.

Using the traditional case abstraction model in addition to a local, customized survey for families who suffer a fetal or infant loss, Solano's FIMR program aims to prevent future deaths and improve the system of support and follow-up for families suffering a fetal or infant death.

Participants of the Case Review Team and Case Action team include local prenatal care providers, reproductive health service providers, primary care providers, social workers, case managers, WIC, Child Welfare Services, Employment and Eligibility, and community members.

FIMR is part of the Solano Child Fatality Review and Response program.



Priority Problem #11: Low Birth Weight & Prematurity

Why Is This Important?

The length of a normal pregnancy is approximately 40 weeks. A baby born before 37 weeks is said to have been born prematurely. Babies born too early (especially before 32 weeks) have higher rates of death and disability. Babies who survive may have breathing problems, feeding difficulties, cerebral palsy (group of disorders that affect movement, balance, and posture), development delay, vision problems, and hearing problems.[70]

Babies who are born too small are also at greater risk. A newborn weighing less than 5 lbs. 8 oz or 2,500 grams immediately after delivery is considered to have been born at low birth weight. Babies may be born too small due to prematurity or other problems that occur during fetal development. Babies born with low birthweight have increased risk for chronic diseases such as diabetes, heart disease, elevated blood pressure, metabolic syndrome, and obesity.[71]

In 2017, preterm birth and low birth weight accounted for about 17% of infant deaths.

Nationally, rates of low birth weight and prematurity have been increasing since 2015. The nationwide prematurity rate in 2018 was 10.02%, indicating that 1 in 10 babies were born too soon. Racial and ethnic differences in prematurity rates remain.

What Are We Measuring?

Local Health Indicator	Solano's Previous Rate (of live births in 2007-2009)	Solano's Rate (of live births in 2014-2016)	California's Rate (of live births in 2014-2016)
Low Birthweight: Births weighing less than 2,500 grams per 100 live births	7.3%	6.5%	6.8%
Very Low Birthweight: Births weighing less than 1,500 grams per 100 live births	1.2%	1.2%	1.1%
Prematurity: Births less than 37 weeks of gestation	9.3%	8.3%	8.4%
Prematurity: Late Preterm Late preterm births between 34 to 36 weeks of gestation	6.7%	6.0%	6.2%
Prematurity: Moderate Preterm Live births between 32 and 33 weeks of gestation	1.1%	1.0%	1.0%
Prematurity: Very Preterm Live births less than 32 weeks of gestation	1.4%	1.3%	1.3%

Source: California Center for Health Statistics, Vital Statistics, Birth Statistical Master File, Years 2013-2015

[70] March of Dimes. (2019). https://www.marchofdimes.org/complications/long-term-health-effects-of-premature-birth.aspx
[71] March of Dimes. (2019). https://www.marchofdimes.org/complications/low-birthweight.aspx

Compared to previous years, Solano County's rate of low birthweight (newborns weighing less than 2,500 grams or 5 lbs. 8 oz) has significantly improved from 7.3% in 2004-2006 to 6.7% in 2013-2015. There is no significant difference between Solano's rate and the state's rate. There is also no significant difference in Solano's changes in very low birthweight (newborns weighing less than 1,500 grams or 3 lbs. 5 oz) compared to the previous years or the state.

Compared to the 2007-2009 period, Solano County's rate of prematurity (less than 37 weeks of gestation) in 2013-2015 improved from 9.3% to 8.3%. There is no significant difference in Solano's rate of prematurity to the state. Additionally, Solano County demonstrated an improvement in the rate of late preterm deliveries (34 to 36 weeks of gestation).

What Health Disparities Exist?

Solano County's rate of premature birth has decreased slightly over the last ten years and is comparable to the rate for the state of California overall. However, this slight improvement obscures the fact that significant disparities exist between race/ethnic groups. Prematurity rates are significantly higher for African American/Black and Asian babies compared to White babies, and high rates of prematurity and very low birth weight are the biggest contributor to the difference in infant mortality between African American/Black and White babies in Solano County.

Example of Successful Collaboration Addressing Low Birth Weight & Prematurity

SOLANO HEALS

Solano Health Equity for African American/Black Lives in Solano (Solano HEALS) is a community driven effort to promote equity in birth outcomes for African American/Black babies by addressing race equity training for medical providers and mental health problems in the African American/Black community and advocating for Centering Pregnancy (or group prenatal care). By implementing upstream and downstream strategies, Solano HEALS addresses urgent needs of the community while planning to make long-term change in systems of care.

Source: Solano HEALS Organization website

WITH SUPPORT FROM

FIGHTING BACK PARTNERSHIP · FIRST 5 SOLANO CHILDREN AND FAMILIES COMMISSION · KAISER PERMANENTE · NEIGHBORHOOD RISING · NEW DAWN FAMILY COMPANION · Partnership HealthPlan of California · SOLANO COUNTY DEPARTMENT OF HEALTH & SOCIAL SERVICES · SOLANO PUBLIC HEALTH · Solano Coalition for Better Health · La Clínica · MARCH OF DIMES · Planned Parenthood Care. No matter what. Planned Parenthood Northern California · TOURO UNIVERSITY WORLDWIDE

Conclusion

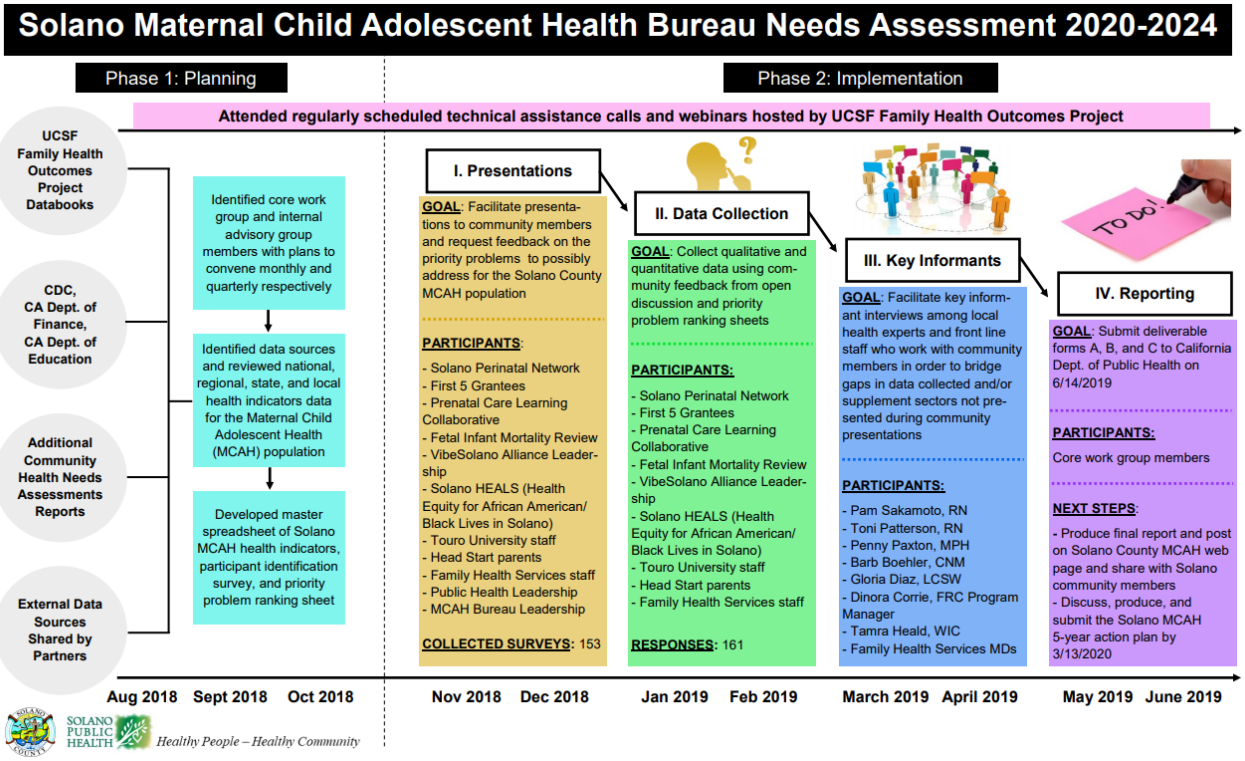
The priority problems described here are by no means an exhaustive list of the challenges faced by Solano County's pregnant women, infants, children and families as they journey towards better health. However, they are issues that have been identified jointly by subject matter experts and the community at large as key opportunities for improvement.

Many of these issues have their roots in problems that go far beyond what we typically think of as health issues – they are deeply influenced by access to (or lack of access to) a healthy environment, good jobs, secure access to food, education, and equitable treatment in society.

Solutions will require collaborative and inter-disciplinary action to address the many factors which impact health and wellness. MCAH Bureau will continue to monitor the health data of the County and assist with coordination of systems-wide efforts to address areas of concern.

The MCAH Bureau hopes that all those in our community who value good health for the community as a whole will utilize the information contained in this report and contribute to positive change in the years ahead.

Appendix A: About MCAH Needs Assessment Process



The MCAH Needs Assessment could not have been completed without the help of the participants of the MCAH Advisory Group. This group met on multiple occasions to consider the data, share their perspective, and guide the work. We are grateful to all members of the MCAH Needs Assessment Advisory Group.

In early Fall 2018, the core workgroup and interdisciplinary Advisory Group of the Needs Assessment process identified data sources and reviewed national, regional, state, and local health indicators data for the Maternal Child and Adolescent Health (MCAH) population. With feedback from the advisory team, the core workgroup developed documents to support the Needs Assessment process, including a master spreadsheet of health indicators and priority problem ranking sheet.

Core workgroup members facilitated data presentations to community members at various organizations, agencies, and collaboratives and sought feedback in the form of qualitative and quantitative data for the top priority problems to possibly address in Solano County for the MCAH population. Some community members received the presentation more than once, thus resulting in 8 duplicate surveys.

Core workgroup members also facilitated key informant interviews among local health experts and frontline staff representing diverse organizations, agencies, and groups who work with community members. These interviews helped to identify gaps in data collection and gather perspectives from sectors not captured during community presentations. These key informants reflected upon data regarding their field of expertise and provided feedback on challenges, barriers, and potential solutions to the biggest problems facing the MCAH population in Solano County.

The core workgroup returned to the Advisory Group in Spring 2019 and asked participating members to vote on the top 8 priority problems affecting the MCAH population in Solano County. The core workgroup identified 3 additional priority problems. In June 2019, Solano MCAH Bureau submitted its deliverables to the state MCAH Program. The core workgroup's next step is to develop action plans for priority problems Solano MCAH Bureau will address directly.

Appendix B: Participating MCAH Needs Assessment Advisory Group

The work of the MCAH Needs Assessment could not be completed without our Needs Assessment Advisory Group. This group met on multiple occasions to consider the data, share their perspective, and guide the work. We are grateful to all the members of the Needs Assessment Advisory Group for their participation.

MCAH Needs Assessment Advisory Group (Listed Alphabetically)
Yolanda Bryant
Jan Babb
Cinda-Rae Clemente
Deborah Espinoza
Shandi Fuller, MD
Matt Green
Kristine Lalic
Wendy Loomas
Bela Matyas, MD, MPH
Sara Naramore
Pam Sakamoto
Susan Whalen

Appendix C: Participating MCAH Needs Assessment Stakeholders

MCAH Needs Assessment Participating Stakeholders (Listed Alphabetically)
Bikers Against Child Abuse
Candidate – County Supervisor (Individual)
Child Haven
Child Welfare Services
Child Start Inc
Community Medical Center Dixon
Fairfield Police Activities League (PAL) Program
Fairfield-Suisun Unified School District
Fighting Back Partnership
First 5 Solano
Greater Vallejo Recreation District
Head Start
Head Start Policy Council (Parent)
Kaiser Permanente
Ole Health
Ombudsmen Services, Solano/Contra Costa County
Med Mark Treatment Centers
Partnership Health Plan of California
Regional Perinatal Programs of California
SoFIT Network/Mayor's Marathon Club
Solano Black Infant Health (BIH) Program
Solano Community College
Solano County Adolescent Family Life Program (AFLP)
Solano County Family Health Services
Solano County Community Health Promotion & Community Wellness Bureau
Solano County Healthy Families Solano (HFS) Program
Solano County Office of Education
Solano County Children's Medical Services
Solano County Nurse Family Partnership (NFP) Program
Solano County Public Health Nursing (PHN) Program
Solano County Women, Infants, Children (WIC) Program
Solano Family & Children's Services
Solano Fetal Infant Mortality Review (FIMR) Program
Solano Health Equity for African American/Black Lives (Solano HEALS)
Solano Perinatal Network (SPN)
Solano Sudden Infant Death Syndrome (SIDS) Program
The Suisun City Salvation Army KROC Center
Touro University California, College of Osteopathic Medicine
Touro University Mobile Diabetes Education Center, Diabetes Prevention Program
Vacaville Police Department
Vibe Solano

Appendix D: MCAH Health Indicators in Comparison, with Sources

Table 1: Health Indicators for which Solano County is Doing Better

Health Indicators for which Solano County is Doing Better		Data Source
Doing Better than California	Uninsured pre-pregnancy per 100 females delivering a live birth	Maternal Infant Health Assessment (MIHA) Survey
	Births conceived within 18 months of a previous birth per 100 females age 15 to 44 delivering a live birth	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Cesarean births per 100 low risk females delivering a live birth	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Births weighing less than 2,500 grams per 100 live births	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Tetanus immunizations during pregnancy per 100 females delivering a live birth	Maternal Infant Health Assessment (MIHA) Survey
	Exclusive breastfeeding 3 months after delivery per 100 live births	Maternal Infant Health Assessment (MIHA) Survey
	Uninsured per 100 population age 0 to 18 and age 18 to 64	Small Area Health Insurance Estimates (SAHIE)
	Births per 1,000 females age 15 to 19	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Substance abuse hospitalizations per 100,000 population age 15 to 24	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Poverty (0-200% Federal Poverty Level) per 100 population age 0 to 18 and 18 to 64	Small Area Health Insurance Estimates (SAHIE)
Positive Trend Over Time	Prenatal care in the first trimester per 100 females delivering a live birth	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Births conceived within 18 months of a previous birth per 100 females age 15 to 44 delivering a live birth	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Births less than 37 weeks gestation per 100 live births	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Births weighing less than 2,500 grams per 100 live births	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Uninsured per 100 population age 0 to 18	Small Area Health Insurance Estimates (SAHIE)
	Births per 1,000 females age 15 to 19	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File

Table 2: Health Indicators for which Solano County is Doing Worse

Health Indicators for which Solano County is Doing Worse		Data Source
Doing Worse than California	Prenatal care in the first trimester per 100 females delivering a live birth	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Any smoking during the 1st or 3rd trimester per 100 females with live births	Maternal Infant Health Assessment (MIHA) Survey
	Gestational diabetes per 1,000 females age 15 to 44 delivering a live or still-born infant in-hospital	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data

	Assault Emergency Department visits per 100,000 female population age 15 to 44	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Domestic violence calls per 100,000 population	California State Department of Justice. Office of the Attorney General. Domestic Violence-Related Calls for Assistance
	Deaths per 100,000 population age 15 to 19 and age 20 to 24	California Office of Health Information and Research, Death Statistical Master File
Negative Trend Over Time	Substance use diagnoses per 1,000 hospitalizations of pregnant females age 15 to 24 and age 15 to 44	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Mood disorder hospitalizations per 100,000 female population age 15 to 24 and age 15 to 44	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Mood disorder Emergency Department visits per 100,000 population age 15 to 24 and 15 to 44	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Assault Emergency Department visits per 100,000 female population age 15 to 44	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Substance abuse hospitalizations per 100,000 population age 15 to 24	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Substance abuse Emergency Department visits per 100,000 population age 15 to 24	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Co-occurring Mental Illness Substance Abuse Emergency Department visits per 100,000 population age 15 to 24	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Mental health hospitalizations per 100,000 population age 15 to 24 and age 15 to 44	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Mental health Emergency Department visits per 100,000 population age 15 to 24 and age 15 to 44	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Self-injury Emergency Department visits per 100,000 population age 15 to 24 and 15 to 44	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Motor vehicle injury Emergency Department visits per 100,000 population age 0 to 14 and 15 to 24	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Poverty (0-200% Federal Poverty Level) per 100 population age 0 to 18 and 18 to 64	Small Area Health Insurance Estimates (SAHIE)
	Unemployment per 100 people in the employment market	State of California Employment Development Department

Table 3: Health Indicators for which Solano County Demonstrates No Significant Changes

Health Indicators for which Solano County Demonstrates No Significant Difference		Data Source
Compared to California	Mis-timed or unwanted pregnancy per 100 females delivering a live birth	Maternal Infant Health Assessment (MIHA) Survey
	Prenatal depressive symptoms per 100 females delivering a live birth	Maternal Infant Health Assessment (MIHA) Survey
	Postpartum depressive symptoms	Maternal Infant Health Assessment (MIHA) Survey
	Assault hospitalizations per 100,000 females age 15 to 44	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data

	Births less than 37 weeks gestation per 100 live births	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Births weighing less than 1,500 grams per 100 live births	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Deaths at age less than 1 year per 1,00 live births	California Office of Health Information and Research, Death Statistical Master File
	Births within 18 months of a previous birth per 100 females age less than 20 delivering a live birth	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Motor vehicle injury hospitalizations per 100,000 population age 0 to 14	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Deaths per 100,000 population age 1 to 4 and 5 to 14	California Office of Health Information and Research, Death Statistical Master File
	Unemployment per 100 people in the employment market	State of California Employment Development Department
	Food insecurity during pregnancy per 100 females delivering a live birth	Maternal Infant Health Assessment (MIHA) Survey
Compared to Solano's Past	Cesarean births per 100 low risk females delivering a live birth	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Assault hospitalizations per 100,000 females age 15 to 44	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Assault Emergency Department visits per 100,000 female population age 15 to 24	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Domestic violence calls per 100,000 population	California State Department of Justice. Office of the Attorney General. Domestic Violence-Related Calls for Assistance
	Births weighing less than 1,500 grams per 100 live births	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Deaths at age less than 1 year per 1,00 live births	California Office of Health Information and Research, Death Statistical Master File
	Motor vehicle injury hospitalizations per 100,000 population age 0 to 14	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data

Table 4: Healthy People 2020 Indicators

Healthy People 2020 Health Indicators		Data Source
Meeting the Healthy People 2020 Goal or Suggested Reduction	Prenatal care in the first trimester per 100 females delivering a live birth	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Births less than 37 weeks gestation per 100 live births	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Births weighing less than 2,500 grams per 100 live births	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Births weighing less than 1,500 grams per 100 live births	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Deaths at age less than 1 year per 1,00 live births	California Office of Health Information and Research, Death Statistical Master File
	Births per 1,000 females age 15 to 19	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
Not Meeting	Cesarean births per 100 low risk females delivering a live birth	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File

the Healthy People 2020 Goal or Suggested Reduction	Mood disorder Emergency Department visits per 100,000 population age 15 to 24 and 15 to 44	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Assault Emergency Department visits per 100,000 female population age 15 to 24 and age 15 to 44	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Uninsured per 100 population age 0 to 18 and age 18 to 64	Small Area Health Insurance Estimates (SAHIE)
	Substance abuse Emergency Department visits per 100,000 population age 15 to 24 and 15 to 44	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Co-occurring Mental Illness Substance Abuse Emergency Department visits per 100,000 population age 15 to 24 and age 15 to 44	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Mental health Emergency Department visits per 100,000 population 15 to 24 and age 15 to 44	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Self-injury Emergency Department visits per 100,000 population age 15 to 24 and age 15 to 44	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Births within 18 months of a previous birth per 100 females age less than 20 delivering a live birth	California Center for Health Statistics, Vital Statistics, Birth Statistical Master File
	Motor vehicle injury hospitalizations per 100,000 population age 0 to 14	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Motor vehicle injury Emergency Department visits per 100,000 population age 0 to 14 and age 15 to 24	Office of Statewide Health Planning and Development (OSHPD). Hospital discharge data
	Poverty (0-200% Federal Poverty Level) per 100 population age 0 to 18 and 18 to 64	Small Area Health Insurance Estimates (SAHIE)

Appendix E: MCAH Health Indicator Summary Tool

Maternal/Women's Health Indicators							
#	Indicator Description	Solano previous period Rate or % ***2004-2006*** *unless otherwise noted* **2007-2009* ***2006-2008* ****2009-2011* *****2011-2012* ******2005-2007* *******2010,2011, or 2012* *+ Regional data*	CA State previous period Rate or % ***2004-2006*** *unless otherwise noted* **2007-2009* ***2006-2008* ****2009-2011* *****2011-2012* ******2005-2007* *******2010, 2011, or 2012*	**2015 Solano Cases**	**Solano 2013-2015 Rate or %** ***2013-2015*** *unless otherwise noted* **2015 or 2016* ***2012-2016* ****2008-2013* *****2015-2016* ******2013-2016* *******2014-2015* *^2011-2013* *^^2010-2014*	**CA State 2013-2015 Rate or %** ***2013-2015*** *unless otherwise noted* ** 2015 or 2016* ***2012-2016* ****2008-2013* *****2015-2016* ******2013-2016* *******2014-2015* *^2011-2013* *^^2010-2014*	Healthy People 2020
1A	**Medi-Cal insured deliveries per 100 live births**	**38.6*****	**47.3*****	**1992**	**37.6**	**44.3**	**N/A**
1B	**Uninsured pre-pregnancy per 100 females delivering a live birth**				**13.5**	**21.6**	**N/A**
1C	**Prenatal Care in the first trimester per 100 females delivering a live birth**	**76.59***	**82.74***	**4041**	**79.4**	**83.3**	**77.9**
	Whites	81.6*	87.1*	1357	82.2	87.3	77.9
	Blacks	73*	78.5*	487	78.5	78.6	77.9
	Hispanics	73*	80.2*	1275	75.7	81.0	77.9
	Asians	76.1*	86.3*	525	81.7	85.6	77.9
1D	**Pre-pregnancy overweight or obesity per 100 females delivering a live birth**				**57.7***	**50***	**N/A**
1E	**Mis-timed or unwanted pregnancy per 100 females delivering a live birth**				**32.0**	**30.5**	**N/A**
1F	**PROVISIONAL: Substance use diagnoses per 1,000 hospitalizations of pregnant females ages 15 to 44**	**29.3**	**14.9**	**168**	**44.1**	**19.9**	**N/A**
	Whites	35.9	21.0	62	46.7	28.1	N/A
	Blacks	76.9	44.0	64	99.9	57.3	N/A
	Hispanics	9.0	9.6	30	24.0	14.7	N/A
	Asians	10.7	3.7	23	16.9	3.2	N/A

1G	**Any smoking during the 1st or 3rd trimester per 100 females with live births**	**7.4+**	**8.1**		**5.7**	**2.7**	**N/A**
1H	**PROVISIONAL: Gestational diabetes per 1,000 females age 15 to 44 delivering a live or still-born infant in-hospital**	**5.9**	**5.7**	**326**	**10.0**	**9.2**	**N/A**
	Whites	4.6	4.3	98	8.1	6.9	N/A
	Blacks	4.3	4.0	33	6.6	6.8	N/A
	Hispanics	6.7	6.1	101	10.7	9.6	N/A
	Asians	9.7	8.9	80	16.9	14.1	N/A
1I	**Births conceived within 18 months of a previous birth per 100 females ages 15 to 44 delivering a live birth**	**27.3***	**29***	**773**	**25.3**	**26.6**	**N/A**
	Whites	32*	33*	285	29.9	31.6	N/A
	Blacks	23.5*	29.9*	67	21.7	28.5	N/A
	Hispanics	25*	27*	248	22.6	24.1	N/A
	Asians	26.6*	29.1*	99	24.6	25.6	N/A
1J	**Cesarean births per 100 low risk females delivering a live birth**	**20.9***	**26.1***	**361**	**21.5**	**25.8**	**N/A**
	Whites	19.77*	26.33*	114	20.6	25.2	N/A
	Blacks	21.81*	29.2*	46	21.2	30.7	N/A
	Hispanics	20.32*	25.15*	110	21.8	25.1	N/A
	Asians	24.41*	26.87*	56	25.2	27.0	N/A
1K	**Prenatal depressive symptoms per 100 females delivering a live birth**				**14.6**	**14.1**	**N/A**
1L	**Postpartum depressive symptoms per 100 females delivering a live birth**				**15.9**	**13.5**	**N/A**
1M	**Had a routine checkup with doctor in the last year per 100 females age 18-44**	**87.9****	**85.9****		**77.6*****	**70.4*****	**N/A**
1N	**Ever been diagnosed with heart disease per 100 females age 18 and older**				**9.2*****	**5.5*****	**N/A**
1O	**Uninsured per 100 female population age 18-64**	**15.1****	**20.9****	**8123**	**11.0**	**15.7**	**0.0**
1Pa	**PROVISIONAL: Mood disorder hospitalizations per 100,000 female population age 15 to 44**	**847.0**	**891.7**	**782**	**x1269.6**	**1106.4**	**N/A**

	Whites	1260.8	1430.7	400	1920.4	1784.8	N/A
	Blacks	974.1	1421.4	165	1839.7	2017.1	N/A
	Hispanics	424.3	467.5	113	719.4	689.2	N/A
	Asians	253.6	236.2	55	498.9	358.1	N/A
1Pb	**PROVISIONAL: Mood disorder Emergency Department visits per 100,000 female population age 15 to 44**	**578.8*****	**653.6*****	**2792**	**4312.9**	**1726.1**	**N/A**
1Pc	**PROVISIONAL: Mood disorder Emergency Department visits per 100,000 female population age 15 to 24**	**358.4*****	**453.2*****	**990**	**2219.4**	**1139.0**	**N/A**
1Qa	**PROVISIONAL: Assault hospitalizations per 100,000 females age 15 to 44**	**20.3**	**17.7**	**27**	**16.6**	**14.7**	**N/A**
	Whites	22.3	14.8	11.0	14.0	13.9	N/A
	Blacks	55.1	77.6	14.0	43.7	59.1	N/A
	Hispanics	small numbers	14.1	11.0	16.3	12.6	N/A
	Asians	small numbers	4.5	small numbers	small numbers	4.0	N/A
1Qb	**PROVISIONAL: Assault Emergency Department visits per 100,000 female population age 15 to 44**	**467.1*****	**320.2*****	**507**	**751.3**	**380.8**	**461.2**
1Qc	**PROVISIONAL: Assault Emergency Department visits per 100,000 female population age 15 to 24**	**820.8*****	**709.3*****	**385**	**938.2**	**609.3**	**461.2**
1R	**Domestic violence calls per 100,000 population**	**468.8**	**503.9**	**1960**	**436.8**	**406.1**	**N/A**
1S	**Current smoker per 100 females 18 and older**	**19.8****	**11****		**12.2****	**9.3****	**N/A**
1T	**Binge drinking in the last year per 100 females age 18 and older**	**24.8****	**23.6****		**28.4******	**26.7******	**N/A**
1U	**Total Early Syphilis*, Cases and Incidence Rates of Females 15-44, per 100,000 *rate is unstable**				**4.1***	**6.7***	**N/A**

Infant Health Indicators							
#	Indicator Description	Solano previous period Rate or % ***2004-2006*** *unless otherwise noted* **2007-2009* ***2006-2008* ****2009-2011* *****2011-2012* ******2005-2007* *******2010,2011, or 2012* *+ Regional data*	CA State previous period Rate or % ***2004-2006*** *unless otherwise noted* **2007-2009* ***2006-2008* ****2009-2011* *****2011-2012* ******2005-2007* *******2010, 2011, or 2012*	**2015 Solano Cases**	**Solano 2013-2015 Rate or %** ***2013-2015*** *unless otherwise noted* **2015 or 2016* ***2012-2016* ****2008-2013* *****2015-2016* ******2013-2016* *******2014-2015* *^2011-2013* *^^2010-2014*	**CA State 2013-2015 Rate or %** ***2013-2015*** *unless otherwise noted* ** 2015 or 2016* ***2012-2016* ****2008-2013* *****2015-2016* ******2013-2016* *******2014-2015* *^2011-2013* *^^2010-2014*	Healthy People 2020
2A	**Births less than 37 weeks gestation per 100 live births**	**9.26***	**8.99***	**407**	**8.3**	**8.4**	**11.4%**
	Whites	9.28*	8.83*	125	8.0	7.6	11.4%
	Blacks	11.79*	12.98*	64	10.8	12.1	11.4%
	Hispanics	7.6*	8.52*	127	7.5	8.4	11.4%
	Asians	10.99*	8.92*	49	8.7	7.9	11.4%
2B	**Births weighing less than 2,500 grams per 100 live births**	**7.3**	**6.8**	**319**	**6.7**	**6.8**	**7.8%**
	Whites	6.6	6.4	86	5.6	5.9	7.8%
	Blacks	11.2	12.6	61	10.3	11.8	7.8%
	Hispanics	5.9	6.2	104	6.0	6.4	7.8%
	Asians	8.9	7.5	35	7.8	7.5	7.8%
2C	**Births weighing less than 1,500 grams per 100 live births**	**1.31**	**1.2**	**60**	**1.2**	**1.1**	**1.4%**
	Whites	1.1	1.1	20	1.0	0.9	1.4%
	Blacks	2.1	2.8	10	2.1	2.5	1.4%
	Hispanics	1.2	1.1	32	1.0	1.1	1.4%
	Asians	1.1	1.1	18	1.5	1.0	1.4%
2D	**Tdap immunizations during pregnancy per 100 females delivering a live birth**				**70******	**50.4******	**N/A**
2E	**Exclusive Breastfeeding 3 months after delivery per 100 live births**				**35.3**	**29.1**	**N/A**

2F	**Exclusive in-hospital breastfeeding per 100 females delivering a live birth**	**73********	**62.6********		**80.8***	**69.6***	**N/A**
2G	**Deaths at age less than 1 year per 1,000 live births**	**5.11**	**5.2**	**24**	**5.8**	**4.5**	**6.0**
	Whites	3.51	4.6	18	4.3	3.7	6.0
	Blacks	8.42	12.05	14	9.0	10.6	6.0
	Hispanics	4.59	5.2	18	5.9	4.8	6.0
	Asians	5.59	3.2	7	small numbers	2.6	6.0

Child/Adolescent Health Indicators							
#	**Indicator Description**	Solano previous period Rate or % ***2004-2006*** *unless otherwise noted* **2007-2009* ***2006-2008* ****2009-2011* *****2011-2012* ******2005-2007* *******2010,2011, or 2012* *+ Regional data*	CA State previous period Rate or % ***2004-2006*** *unless otherwise noted* **2007-2009* ***2006-2008* ****2009-2011* *****2011-2012* ******2005-2007* *******2010, 2011, or 2012*	**2015 Solano Cases**	**Solano 2013-2015 Rate or %** ***2013-2015*** *unless otherwise noted* **2015 or 2016* ***2012-2016* ****2008-2013* *****2015-2016* ******2013-2016* *******2014-2015* *^2011-2013* *^^2010-2014*	**CA State 2013-2015 Rate or %** ***2013-2015*** *unless otherwise noted* ** 2015 or 2016* ***2012-2016* ****2008-2013* *****2015-2016* ******2013-2016* *******2014-2015* *^2011-2013* *^^2010-2014*	Healthy People 2020
3A	**Uninsured per 100 population age 0 to 18**	**9.2****	**12.2****	**2779**	**4.5**	**5.7**	**N/A**
3B	**Percentage of overweight and obese public school students in grade 7**				**41.1***	**38.5***	**N/A**
3C	**Estimated percentage of children ages 0-17 who have experienced two or more adverse experiences as of their current age**				**15.6***	**16.4***	**N/A**
3D	**Percentage of children and teens who walked/biked/skated to school in last week**				**40.5****	**41****	**N/A**
3E	**Percentage of public school students in grade 9 who experienced depression-related feelings**				**24.4**	**34.4**	**N/A**
3F	**Percentage of public school children in grade 9 who perceive that their school is very safe**				**19.6^**	**19.8^**	**N/A**

3G	**Percent of public school students in grade 11 who report NO binge drinking in the last month**				**88.5**	**84.2**	**N/A**
3H	**Percent of public school students in grade 11 who report NO E-cigarette use in the last month**				**85.0**	**86.3**	**N/A**
3I	**Percent of public school students in grade 11 who report NO marijuana usage in the past month**				**84.7*****	**82*****	**N/A**
3Ja	**PROVISIONAL: Substance abuse hospitalizations per 100,000 population age 15 to 24**	**618.1**	**542.1**	**292**	**728.5**	**793.4**	**N/A**
	Whites	786.4	798.2	140	986.7	1197.5	N/A
	Blacks	996.4	864.3	71	1320.1	1568.6	N/A
	Hispanics	366.6	372.3	50	450.3	557.8	N/A
	Asians	221.6	134.2	24	197.6	203.7	N/A
3Jb	**PROVISIONAL: Substance abuse Emergency Department visits per 100,000 population age 15 to 24**	**926.5*****	**875.9*****	**846**	**2162.4**	**1675.5**	**N/A**
3Jc	**PROVISIONAL: Co-occurring Mental Illness/Substance Abuse Emergency Department visits per 100,000 population age 15 to 24**	**126.4*****	**160.4*****	**251**	**635.2**	**444.5**	**N/A**
3Ka	**PROVISIONAL: Mental health hospitalizations per 100,000 population age 15 to 24**	**1094.1**	**1107.8**	**645**	**1538.2**	**1499.2**	**N/A**
	Whites	1381.9	1574.6	296	2134.6	2181.7	N/A
	Blacks	1717.4	1992.0	141	2483.2	2919.5	N/A
	Hispanics	633.3	738.7	112	962.3	1061.7	N/A
	Asians	474.4	381.1	39	615.9	562.4	N/A
3Kb	**PROVISIONAL: Mental health Emergency Department visits per 100,000 population age 15 to 24**	**1939*****	**1926.9*****	**2507**	**5772.7**	**3827.5**	**N/A**
3Kc	**PROVISIONAL: Self-injury Emergency Department visits per 100,000 population age 15 to 24**	**227.6*****	**234.7*****	**297**	**676.4**	**521.5**	**112.8**
3L	**Births per 1,000 female age 15 to 19**	**32.46**	**39.3**	**207**	**17.8**	**21.0**	**N/A**

	Whites	18.0	15.8	28	9.5	8.4	N/A
	Blacks	41.7	43.5	41	22.3	24.9	N/A
	Hispanics	60.0	66.1	109	28.7	31.5	N/A
	Asians	15.8	11.0	12	2.8	4.2	N/A
3M	**Births within 18 months of a previous birth per 100 females age less than 20 delivering a live birth**	**66.1***	**68.3***	**18**	**63.3**	**66.0**	**N/A**
	Whites	76*	71.1*	5	small numbers	71.3	N/A
	Blacks	50*	67.9*	13	65.0	68.4	N/A
	Hispanics	66.3*	67.5*	19	62.3	64.9	N/A
	Asians	small numbers	76.7*	small numbers	small numbers	71.6	N/A
3N	**Gonorrhea rate per 100,000 female population age 15 to 19**				**330.8***	**264.6***	**N/A**
3O	**Chlamydia rate per 100,000 female population age 15 to 19**				**2844***	**2101***	**N/A**
3Pa	**PROVISIONAL: Motor vehicle injury hospitalizations per 100,000 population 0 to 14**	**25.32**	**32.3**	**28**	**16.6**	**14.2**	**N/A**
	Whites	22.0	29.3	10	15.8	10.8	N/A
	Blacks	27.5	52.3	9	small numbers	29.9	N/A
	Hispanics	18.6	31.8	12	15.0	16.3	N/A
	Asians	small numbers	14.4	small numbers	small numbers	6.0	N/A
3Pb	**PROVISIONAL: Motor vehicle Emergency Department visits per 100,000 population age 0 to 14**	**264.3*****	**293.4*****	**290**	**459.4**	**303.4**	**N/A**
3Pc	**PROVISIONAL: Motor vehicle injury Emergency Department visits per 100,000 population age 15 to 24**	**1234*****	**1220.5*****	**868**	**1777.6**	**1157.5**	**N/A**
3Q	**Deaths per 100,000 population age 1 to 4 years**				**25.8**	**17.8**	**N/A**
3R	**Deaths per 100,000 population age 5 to 14 years**				**11.4**	**10.4**	**N/A**
3S	**Deaths per 100,000 population age 15 to 19 years**				**64.3**	**37.8**	**N/A**
3T	**Deaths per 100,000 population age 20 to 24 years**				**93.0**	**68.1**	**N/A**

Social Determinants of Health							
#	Indicator Description	Solano previous period Rate or % ***2004-2006*** *unless otherwise noted* **2007-2009* ***2006-2008* ****2009-2011* *****2011-2012* ******2005-2007* *******2010,2011, or 2012* *+ Regional data*	CA State previous period Rate or % ***2004-2006*** *unless otherwise noted* **2007-2009* ***2006-2008* ****2009-2011* *****2011-2012* ******2005-2007* *******2010, 2011, or 2012*	**2015 Solano Cases**	**Solano 2013-2015 Rate or %** ***2013-2015*** *unless otherwise noted* **2015 or 2016* ***2012-2016* ****2008-2013* *****2015-2016* ******2013-2016* *******2014-2015* *^2011-2013* *^^2010-2014*	**CA State 2013-2015 Rate or %** ***2013-2015*** *unless otherwise noted* ** 2015 or 2016* ***2012-2016* ****2008-2013* *****2015-2016* ******2013-2016* *******2014-2015* *^2011-2013* *^^2010-2014*	Healthy People 2020
5A	Poverty (0-200% FPL) per 100 population age 18 to 64	24.4***	30.3**	37312	27.8	34.7	N/A
5B	Poverty (0-200% FPL) per 100 population age 0 to 18	32.5***	42**	38567	37.4	45.9	N/A
5C	Single mothers living in poverty per 100 single mothers	37.1^	39.4^		24.9*	34.9*	N/A
5D	Unemployment per 100 people in the employment market	5.3***	5.5***	12500	7.6	7.5	N/A
5E	High school dropout per 100 students in grades 9-12	19.9^	14.7^		9.9*	10.7*	N/A
5F	Felony arrest per 1,000 children ages 0-17 years				8.3*	5.3*	N/A
5G	Children receiving free or reduced price meals at school per 100 students	48.5^	57.5^		51.9*	58.6*	N/A
5H	Children foster care per 1,000 children age 0 to 17	4.4***	6.8***	469	4.6	6.3	N/A
5I	Percentage of adults with 4 or more ACEs				15.9***	15.9***	N/A
5J	Food insecurity during pregnancy per 100 females delivering a live birth				19	15.6	N/A
5K	Income inequality ratio (Ranking of ratio of household income at the 80th percentile to income at the 20th percentile)				4.4**	5.2**	N/A
5L	Percentage of households with severe housing problems				23^^	28^^	N/A
5M	Number of days with ozone above regulatory standards	1.0	16.0		0.3*	4.9*	N/A

Children and Youth with Special Health Care Needs (CSHCN)							
#	Indicator Description	Solano previous period Rate or % ***2004-2006*** *unless otherwise noted* **2007-2009* ***2006-2008* ****2009-2011* *****2011-2012* ******2005-2007* *******2010,2011, or 2012* *+ Regional data*	CA State previous period Rate or % ***2004-2006*** *unless otherwise noted* **2007-2009* ***2006-2008* ****2009-2011* *****2011-2012* ******2005-2007* *******2010, 2011, or 2012*	**2015 Solano Cases**	**Solano 2013-2015 Rate or %** ***2013-2015*** *unless otherwise noted* **2015 or 2016* ***2012-2016* ****2008-2013* *****2015-2016* ******2013-2016* *******2014-2015* *^2011-2013* *^^2010-2014*	**CA State 2013-2015 Rate or %** ***2013-2015*** *unless otherwise noted* ** 2015 or 2016* ***2012-2016* ****2008-2013* *****2015-2016* ******2013-2016* *******2014-2015* *^2011-2013* *^^2010-2014*	Healthy People 2020
6A	**Percentage of public school children enrolled in special education with an autism diagnosis**				**11.9***	**13.2***	**N/A**
6B	**Percentage of public school children enrolled in special education**				**11.8***	**11.8***	**N/A**
6C	**Number of CSHCN enrolled in CCS**				**1648***	**238033***	**N/A**
6D	**PRELIMINARY: Percentage CCS CSHCN receiving transition services (ages 14-20)**				No info available	**69******	**N/A**
6E	**% of children 0-18 with one or more major disabilities**				**3.5***	**3.1***	**N/A**
6F	**Rate of emergency department visits for Asthma (ages 0-17)**				Data pending	Data pending	**N/A**

Population Demographics			
		2015	
		Local	**State**
4A	**Total Population**	**432,921**	**38,896,969**
4B	**Total Population African American**	**60,077**	**2,236,361**
4C	**Total Population Asian/Pacific Islander**	**67,058**	**5,301,831**
4D	**Total Population Am. Indian/Alaska Native**	**1,985**	**172,948**
4E	**Total Population Hispanic**	**108,730**	**15,172,006**
4F	**Total Population White**	**171,368**	**14,972,954**
4G	**Total Population Multi-Race**	**23,703**	**1,040,869**