Epi-Aid 2016-018: Undetermined risk factors for suicide among youth, ages 10–24 — Santa Clara County, CA, 2016

Final Report

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Executive Summary

Background

Staff from the Centers for Disease Control and Prevention (CDC) and the Substance Abuse and Mental Health Services Administration (SAMHSA), responded to a request for Epidemiologic Assistance (Epi-Aid) from the Santa Clara County Public Health Department (SCCPHD) to collaborate with the SCCPHD and meet the following objectives:

1. Characterize the epidemiology of, and trends in, fatal and nonfatal suicidal behaviors among youth occurring from 2003 through 2015[1] in Santa Clara County, California.
2. Examine the degree to which media coverage of youth suicides occurring from 2008 through 2015 in Santa Clara County, California, met safe suicide reporting guidelines.
3. Inventory and compare youth suicide prevention policies, activities, and protocols used in the community to evidence-based and national recommendations.
4. Synthesize information from objectives 1–3 to make recommendations on youth suicide prevention strategies that can be used at the school-, community-, and county- levels.

Youth were defined as those aged 10 to 24, and this included adolescents and young adults. To meet the objectives of this investigation, staff visited Santa Clara County from February 15–29, 2016 to abstract data from medical examiner reports and meet with community stakeholders.

[1] The initial time-frame of focus for this investigation was 2008–2013. As the Epi-Aid data abstraction of medical examiner reports was planned and began, the community requested extending data abstraction of medical examiner reports to include 2003–2015. Therefore, data from 2003–2015 were examined for fatal suicidal behavior when data were available and applicable.

Datasets Utilized

Multiple data sources were used to meet the objectives of this investigation, including the following:

- CDC's Wide-ranging Online Data for Epidemiologic Research (CDC WONDER)
- Vital statistics (death certificate data)
- Medical examiner data
- Emergency department data
- Patient discharge data
- Developmental Assets Survey from Palo Alto Unified School District
- California Healthy Kids Survey
- Project Safety Net Community Survey
- Media scan of articles covering suicide deaths in the Santa Clara County
- Inventory of suicide prevention programs and policies being utilized in Santa Clara County at the time of the Epi-Aid

Key Findings

CDC WONDER	• The crude suicide rate for youth residents, age 10–24, of Santa Clara County from the combined years of 2003–2014 was 5.4 per 100,000 (95% CI: 4.7–6.1). This was similar to the crude suicide rate for youth residents of the state of California for the same time period (5.3 per 100,000; 95% CI: 5.1–5.4).
Vital statistics	• There was a total of 229 suicide deaths that occurred in the state of California among youth ages 10 to 24 whose *residence* was in Santa Clara County. This includes residents of Santa Clara County that died outside of Santa Clara County during the combined years of 2003–2015. • The average age of youth, age 10–24, suicide decedents who died in California and whose residence was in Santa Clara County was 20.4 years old (SD 2.8, Range 13–24), and 66.4% (n=152) of decedents were age 20 to 24. • Over three quarters (75.1%, n=172) of youth, age 10–24, suicide decedents whose deaths occurred in California during the years of 2003–2015 and whose residence was in Santa Clara County were male.
Medical examiner and National Violent Death Reporting System data	• The most common methods of suicide among youth residents that died in Santa Clara County during 2003–2015 were hanging/suffocation (47.6%), followed by firearm (21.0%). • Almost all youth residents that died by suicide in Santa Clara County during 2003–2015 (92.3%, n=194) had some known precipitating circumstances indicated in the medical examiner reports.

Medical examiner and National Violent Death Reporting System data, continued	• Among youth residents that died by suicide in Santa Clara County during 2003–2015 with reported precipitating circumstances, common precipitating factors included, but were not limited to, a recent crisis, current mental health problem, history of treatment for mental health problems, and a history of suicidal thoughts or ideation. • Among youth suicide decedents that that were residents of Santa Clara County and died in Santa Clara County during 2003–2013, and had known precipitating circumstances, the precipitating circumstances identified in Santa Clara County were similar to precipitating circumstances for youth suicide decedents from pooled, high-income counties, selected from states participating in the National Violent Death Reporting System from 2003–2013. • There was consistency across Santa Clara County cities in the precipitating circumstances identified among youth residents that died by suicide in Santa Clara County during 2003–2015.
Emergency department and patient discharge data	• The majority of emergency department visits from 2005–2014 (65%) and hospitalizations from 2004–2014 (64%) for suicide attempt/self-harm and/or suicidal ideation among youth ages 10–24 were by females. • Ninety-two percent of emergency department visits for suicide attempt/self-harm and/or suicidal ideation among youth ages 10–24 by Santa Clara County residents occurred at facilities within Santa Clara County from 2003–2014. • Both 10–14 year-olds and 15–19 year-olds were significantly more likely than 20–24 year-olds to be hospitalized outside the county for suicide attempt/self-injury and/or suicidal ideation. • Over three-quarters of hospitalizations, and one-quarter of emergency department visits, resulted in discharge to home.
Developmental Assets Survey, Palo Alto Unified School District	• Protective factors that protect against ever having made a suicide attempt among high school students participating in the 2010 administration of the Developmental Assets Survey at the Palo Alto Unified School District include, but are not limited to: o High self-esteem/perception of self, positive relationships with parents/family, and positive relationships with school and community. • Risk factors for ever having made a suicide attempt among high school students participating in the 2010 administration of the Developmental Assets Survey at the Palo Alto Unified School District include, but are not limited to: o Drug and alcohol use, victim or perpetrator of violence, mental health problems, and delinquent behaviors.

California Healthy Kids Survey	• Protective factors for past year suicide attempt and past year suicidal ideation among high school students participating in the 2013/2014 administration of the California Healthy Kids Survey in Santa Clara County include, but are not limited to:
	  o Caring relationship with teacher/adult in school, high school connectedness, and academic motivation.
	• Risk factors for past year suicide attempt and past year suicidal ideation among high school students in Santa Clara County include, but are not limited to:
	  o Drug or alcohol use, feeling sad or hopeless, and victimization/exposure to bullying at school.

Project Safety Net Community Survey	• Current students and current parents who were residents of Palo Alto and completed the Project Safety Net Community Survey in 2016 had variable attitudes about suicide, variable perceptions of factors associated with suicide, and variable levels of support for suicide prevention activities in Palo Alto. • For example, current students that were residents of Palo Alto, and who completed the Project Safety Net Community Survey in 2016, were less likely to agree with the following statements than current parents: • "I would be comfortable telling a friend or family member if I felt I needed professional help for depression," and "depression is a medical disorder that responds to treatment."
Media scan	• Media coverage of suicide deaths in the Santa Clara County area, from 2008–2015 was found, overall, to deviate from accepted safe suicide reporting guidelines. • The most common violations included descriptions of methods of suicide and locations of suicide-related injury within the text of the article. • Over time, there was sustained improvement in following some guidelines; however, even after improvement, in 2015 only 40% of articles about suicide included at least one suicide prevention hotline number.
Inventory of programs and policies	• Of the programs, policies, plans, activities, and protocols shared with the Epi-Aid team by SCCPHD and community stakeholders, a total of 51 were identified as specifically related to suicide prevention. • The majority of these programs were focused on prevention activities or supports, such as education, gatekeeper training, clinical services, and crisis-related services. • Several programs were identified by the Epi-Aid team as being evidence-based; however, a limited number of programs and policies were being evaluated for process and/or outcome measures. It is unclear if programs and policies currently being used are effective in achieving the community's goals.

Recommended suicide prevention strategies

1. Multiple prevention approaches to address multiple risk factors
2. Access to evidence-based mental health care
3. Family relationships and family-based programs
4. Connection to school and school-based programs
5. Identify and support people at risk
6. Crisis intervention
7. Suicide postvention
8. Prevention of other forms of violence
9. Reducing access to lethal means for youth at-risk
10. Safe messaging and reporting about suicide
11. Strategic planning for suicide prevention
12. Selection and implementation of evidence-based programs
13. Continuous program evaluation

Background

From May 2009 through January 2010, five known suicides occurred among incoming, current, or alumni of one high school in one school district in Santa Clara County, California. From October 2014 through March 2015, four additional known suicides occurred among current or alumni of two high schools in the same school district in Santa Clara County, California. In response to these community-identified clusters[2] in the Santa Clara County city of Palo Alto, the California Department of Public Health (CDPH) requested epidemiological assistance (i.e., Epi-Aid) from the Centers for Disease Control and Prevention (CDC) and the Substance Abuse and Mental Health Services Administration (SAMHSA) to understand youth suicide in Santa Clara County, and, data permitting, in the affected cities and school districts, such as Palo Alto. CDPH, the Santa Clara County Public Health Department (SCCPHD), and local community stakeholders were interested in using epidemiologic methods to explore characteristics of and trends in fatal and nonfatal suicidal behavior among youth, examine factors associated with fatal and nonfatal suicidal behavior, examine media reporting of suicide in the region, inventory local youth suicide prevention policies and activities, and identify prevention strategies that can be used at the school-, community-, and county-levels. Youth were defined as individuals from age 10 through 24, which includes both adolescents and young adults. The initial time-frame of focus for this investigation was 2008–2015. As the Epi-Aid data abstraction of medical examiner reports was planned and began, the community requested extending data abstraction of medical examiner reports to include 2003–2015. Therefore, data from 2003–2015 were examined for fatal suicidal behavior when data were available and applicable. The objectives of this Epi-Aid were to:

1. Characterize the epidemiology of, and trends in, fatal and nonfatal suicidal behaviors among youth occurring from 2003 through 2015[3] in Santa Clara County, California; and

[2] A community identified suicide cluster is a cluster that has been identified by a community but has not been statistically verified.

[3] The initial time-frame of focus for this investigation was 2008–2015. As the Epi-Aid data abstraction of medical examiner reports was planned and began, the community requested extending data abstraction of medical examiner reports to include

    a. Data permitting, compare characteristics at multiple levels, such as school districts and cities.
2. Examine the degree to which media coverage of youth suicides occurring from 2008 through 2015 in Santa Clara County, California, met safe suicide reporting guidelines.
3. Inventory and compare youth suicide prevention policies, activities, and protocols used in the community to evidence-based and national recommendations.
4. Synthesize information from objectives 1-3 to make recommendations on youth suicide prevention strategies that can be used at the school-, community-, and county- levels.

Santa Clara County

Santa Clara is located in the Bay Area region of the state of California. According to the U.S. Census, the estimated population of Santa Clara County in July of 2015 was 1,918,044 persons.[1] Approximately 23% of the population of Santa Clara County in 2015 was under the age of 18. The county is racially and ethnically diverse. Approximately 56% of the population in 2015 was White, 36% Asian, and 3% Black or African American. Additionally, in 2015, about 26% of the population was Hispanic or Latino. Santa Clara County is comprised of 15 cities or towns including the following, with 2015 population estimates from the U.S. Census in parentheses: San Jose (1,026,908), Sunnyvale (151,754), Santa Clara (126,215), Mountain View (80,435), Milpitas (77,604), Palo Alto (66,853), Cupertino (60,572), Gilroy (53,231), Morgan Hill (42,948), Campbell (41,117), Saratoga (30,968), Los Gatos (30,705), Los Altos (30,671), Los Altos Hills (8,419), and Monte Sereno (2015 estimate unavailable at U.S. Census).[2]

2003–2015. Therefore, data from 2003–2015 were examined for fatal suicidal behavior when data were available and applicable.

Epi-Aid Investigations

Epi-Aid investigations are rapid, short-term investigations of urgent public health problems.[3] To initiate an Epi-Aid, public health authorities, such as a health departments or ministries of health, must make a formal request to the CDC for assistance. Epi-Aid investigations can focus on communicable and non-communicable health problems as well as natural and manmade disasters. Epi-Aid investigations of youth suicide have been conducted throughout the United States.[4-8] Each Epi-Aid is unique and the methods, approaches, and strategies utilized are informed by the investigation objectives, local context, available information/data sources, and epidemiological data.

As part of this mechanism, Epidemic Intelligence Service (EIS) Officers, along with subject matter experts from CDC, provide technical assistance and support to requesting partners to engage in a rapid investigation.[3] This includes a field portion of the investigation, which is used to collect data needed to meet the investigation's objectives. The goal of an Epi-Aid investigation is to provide specific, and actionable, public health recommendations that can be used by community stakeholders to mitigate the public health problem.

Epi-Aids are not research studies, rather they are rapid investigations of urgent public health problems that tend to use field epidemiology techniques and approaches. Field epidemiology is the application of epidemiology to a public health problem when (1) the timing of a problem is unexpected, (2) a timely response is needed, (3) field work by public health epidemiologists is required, and (4) time and other situational constraints on investigation methods will likely limit the investigation extent.[9] The primary goal in field epidemiology is to "inform, as quickly as possible, the process of selecting and implementing interventions to lessen or prevent illness or death when such problems arise."[9]

For this investigation, multiple secondary datasets were used to understand the epidemiology and trends of fatal and nonfatal suicidal behavior among youth in Santa Clara County. Using secondary data has multiple advantages. First, secondary data already exists and this limits the amount of time needed to

collect new data allowing for more rapid development of prevention recommendations. Second, the Epi-Aid team was able to examine multiple years of data about fatal and nonfatal suicidal behavior in Santa Clara County. Third, most of the secondary data sources used in this investigation (e.g., vital statistics, medical examiner reports, emergency department and patient discharge data, and youth survey data) contained extensive information that would allow for more generalizable findings to all youth in Santa Clara County. Finally, the use of data from existing surveillance systems or other sources can provide a framework for ongoing monitoring of the public health problem by local public health authorities after the Epi-Aid has ended.

Field Portion

On February 15, 2016, EIS Officers, Drs. Amanda Garcia-Williams, Julie O'Donnell, and Erica Spies; CDC/Division of Violence Prevention Behavioral Scientist Dr. Kevin Vagi; and SAMHSA Epidemiologist, Dr. Alejandro Azofeifa departed for Santa Clara County, California. Dr. Vagi returned from the field after 5 days on February 19, 2016. Drs. Garcia-Williams, O'Donnell, Spies, and Azofeifa returned from the field after 15 days, on February 29, 2016. While in the field, the team systematically abstracted medical examiner reports for suicides among youth ages 10 through 24 that occurred in Santa Clara County during 2003–2015 into an electronic database and attended community meetings to learn about existing suicide prevention programs, policies, and activities.

Investigative Approach

Social Ecological Model

For this investigation, analyses and recommendations were guided by the Social Ecological Model (SEM) as the theoretical orientation.[10] Research has shown that the potential for suicide is affected by individual, interpersonal, community, and societal factors. Additionally, research has

indicated that a comprehensive prevention approach that addresses all of these factors can result in significant benefits. Using the SEM approach to guide the investigation, the Epi-Aid team examined multiple data sources to consider a broad range of potential risk and protective factors. Risk factors are characteristics that may put an individual at increased risk for suicide, while protective factors are characteristics that could help insulate or buffer an individual from suicide.[11,12] The SEM allows for a better understanding of risk and protective factors for fatal and nonfatal suicidal behaviors across all levels of the social ecology and helps in the generation of comprehensive prevention recommendations.

County-Wide Approach

Suicide was the second leading cause of death among youth, age 10-24 in Santa Clara County in 2014[13] and affects youth throughout the county. For this investigation, a county-wide approach was used. As part of this approach, the epidemiology of fatal and nonfatal suicidal behavior in Santa Clara County, as a whole, was examined to provide the overall context of suicide in this county. Additional analyses were then conducted to examine the epidemiology of fatal and nonfatal suicidal behavior at lower levels, including city and school district levels. Based on these findings, additional analyses were conducted in communities with elevated suicide rates, relative to the rest of Santa Clara County. This strategy allowed for the iterative use of epidemiological data to objectively guide the types of analyses conducted on the datasets available. Please note, the request for epidemiological assistance was prompted by concerns about suicides among students in the city of Palo Alto; therefore, several datasets shared for this investigation (e.g., Developmental Assets, Project Safety Net Community Survey) only included information about the Palo Alto community.

A county-wide approach has been used in other investigations of youth suicide[4,7] and has several advantages. First, suicide in one community can affect youth throughout the county. Understanding suicidal behavior across the county, in addition to local cities or school districts, can provide more

comprehensive information that can be used to prevent suicide among all youth in Santa Clara County. Second, this strategy allows for comparisons between Santa Clara County (as a whole) and other counties in the state of California, other counties in other states, and the United States in general. This information is important because it puts the epidemiology of suicide in Santa Clara County into a broader context and allows for identification of unique patterns or differences. Third, taking a county-wide perspective allows for comparisons of communities within Santa Clara County to elucidate whether characteristics of youth suicide were unique or common across the Santa Clara County cities and school districts examined. This knowledge can help community stakeholders to understand if county-wide approaches would be appropriate, or if city-specific (or school district-specific) efforts are needed to target unique risk and protective factors. Finally, taking a county-wide approach provided a sufficiently large enough sample size to examine suicide rates in Santa Clara County by year, to stratify by various demographic factors, and to conduct temporal and spatial cluster analyses.

Timeline

- November 11, 2015: Formal request for epidemiological assistance from the California State Health Department on behalf of Santa Clara County Health Department.
- December 14 and 15, 2015: Two phone-based community meetings to discuss objectives and structure of an Epi-Aid investigation.
- January 12, 2016: Objectives finalized and initiating paperwork submitted.
- February 15–29, 2016: Field portion of investigation.
    - 235 medical examiner reports abstracted
    - 10 community stakeholder meetings attended.
    - Visit with Crisis Stabilization unit.
- March–June, 2016: Datasets shared with Epi-Aid team, preliminary analyses of secondary datasets, and writing of Preliminary Trip Report.

- July 6, 2016: Preliminary Trip Report provided to the Santa Clara County Public Health Department.
- July–November, 2016: Final analyses and generation of Final Report.
- January, 2017: Final Report completed.

Data Sources, Case Definitions, and Analytic Strategies

CDC's Wide-ranging Online Data for Epidemiologic Research (CDC WONDER)

Background: CDC's Wide-ranging Online Data for Epidemiologic Research (CDC WONDER) was used to conduct an examination of characteristics and trends of suicide among youth residents of Santa Clara County, age 10–24, from 2003 through 2014[4] and to compare suicide rates to youth residents of other California counties, as well as youth residents of the state of California and the United States.[14]

Case Definition: To be included in analyses of CDC WONDER data, the following case definition was used: (1) Place of residence Santa Clara County, (2) Decedent 10 to 24 years of age, (3) Cause of death indicated with ICD-10 Code of X60-X84 (Intentional self-harm).

Data Analyses: Suicide rates and 95% Confidence Intervals (CI) of youth age 10–24 at the county, state, and national levels were calculated through CDC WONDER. Per the reporting standards of the National Center for Health Statistics, CDC WONDER does not calculate rates when the numerator is less than 20 due to instability of the estimate. To overcome the unreliability/instability of rates calculated with less than 20 cases, data were combined across years.

Dataset limitations: CDC WONDER data are limited to the type of information provided. Details about where suicide deaths occurred (e.g., which specific city) among residents of Santa Clara County are not available in the dataset. Additionally, during initial conversations with the community about the investigation, using a train as the method of suicide was discussed as of particular community interest. No ICD-9 or ICD-10 code is currently available for the use of a train as a method of suicide. Due to this limitation, it was not possible to use CDC WONDER data to systematically determine counts and rates of suicide by train, or to examine train as a method of suicide among youth in Santa Clara County in comparison to other age categories or other communities in California or the United

[4] At the time of this investigation the most recent year of CDC WONDER data were from 2014.

States. Additional steps were taken in this investigation to examine the characteristics of suicide by train, and these are described in the Suicide by Train portion of the Other Methodological Considerations section of this report. Finally, CDC WONDER provides data based on residence of the decedent regardless of place of death. Specific rates for Santa Clara County residents who died in Santa Clara County could not be calculated; rates correspond to all Santa Clara County residents regardless of where they died.

Vital Statistics

Background: Vital statistics data were used to characterize youth suicide decedents age 10–24 in three ways: (1) Decedents that died in Santa Clara County, regardless of place of residence; (2) Decedents that were residents of Santa Clara County, CA, and died in the state of California (in any California county); and (3) Decedents that were residents of Santa Clara County, CA, and died in Santa Clara County. Vital statistics death data, compiled from death certificates, include demographic information and medical data related to all deaths that occurred in Santa Clara County. Data from 2003–2015 were examined as part of this investigation, with data from 2015 being preliminary and subject to change.

Case Definitions: Three case definitions were used to examine vital statistics data: ***Case Definition 1***: (1) County of death listed as Santa Clara County, (2) Decedent 10 to 24 years of age, and (3) Manner of death listed as suicide. This case definition was used to understand the characteristics of youth that died *in* Santa Clara County regardless of where the suicide-related injury occurred or their place of residence. This case definition would include decedents that were transported to Santa Clara County for hospitalization from a different county and who subsequently died in Santa Clara County. ***Case Definition 2***: (1) Residence in Santa Clara County, (2) Death occurred in the state of California, (3) Decedent 10 to 24 years of age, and (4) Manner of death listed as suicide. Over the course of the

investigation, and upon discussions with community stakeholders, it was conveyed that youth in Santa Clara County were sometimes transported to hospitals outside of the county after making a fatal or nonfatal suicide attempt. Case definition 2 was used to examine the characteristics of Santa Clara County decedents that died anywhere (in any county) in the state of California. As part of this investigation, only data from the state of California were available. If a Santa Clara County resident died elsewhere in the United States, they were not included. ***Case Definition 3***: (1) County of death listed as Santa Clara County, (2) Residence in Santa Clara County, (3) Decedent 10 to 24 years of age, and (4) Manner of death listed as suicide. This case definition was used to understand the characteristics of youth that died *in* Santa Clara County and who were *residents* of Santa Clara County. It is also used to complement data abstracted from medical examiner reports. The medical examiner reports reviewed did not contain final death certificates. Vital statistics data for youth suicides occurring from 2003 through 2015 in Santa Clara County were needed to understand demographic characteristics of the decedents whose data were abstracted.

Statistical Analyses: Descriptive statistics were used to characterize suicide decedents based on age, race/ethnicity, biological sex, city of residence, and city of suicide-related injury. Epidemic curves were also constructed to describe the number of suicides that occurred per year.

Crude suicide rates calculated for cities with more than 10 decedents were calculated. However, due to small counts there was concern about the stability of the calculated suicide rates. To overcome this limitation, predicted crude rates of suicide for youth age 10–24 were calculated for cities with more than 10 decedents using Poisson regression. This strategy allowed for the calculation of a predicted crude suicide rate, and for the calculation of the relative standard error (RSE) of the rate. The RSE (which is equal to the standard error of a survey estimate divided by the survey estimate and then multiplied by 100) provided an indicator of the stability of each predicted rate. An RSE of less than 30 was considered reliable for the purposes of this investigation.

Population denominator data used for rate calculation were supplied by the Santa Clara County Public Health Department and were based on the 2010 U.S. Census. Rates of suicide in Santa Clara County, per year, were compared using Poisson regression to determine whether there were significant differences, over time, in rates. Suicide rates were not calculated when the count was less than 10 to limit the possibility of identification of an individual. Additionally, crude rates were calculated in this investigation for all analyses. Age-adjusted rates for cities were not calculated because population denominator data for each city in Santa Clara County were not available to conduct this type of analyses. For all analyses, associations with a p-value of less than 0.05 were considered statistically significant.

Vital statistics data were also analyzed to quantify the degree to which suicide deaths clustered in space or time. For this investigation the CDC definition for a suicide cluster was used.[15] A cluster was defined as a group of suicide deaths that occurred closer together in time or space than would be normally expected in Santa Clara County. SaTScan software was used to quantify the degree of clustering among suicides in Santa Clara County and was used to test for both spatial and temporal clusters.

For the spatial cluster analysis, a point was placed at the zip code centroid of residence for each decedent. Using the zip code of residence for each decedent, the suicides were mapped onto the centroids of Zip Code Tabulation Areas (ZCTAs). ZCTAs are areas delineated by the U.S. Census Bureau and contain population counts from the 2010 census. If more than one decedent resided within the same zip code, multiple points were mapped at that centroid. For comparison, SaTScan generates hundreds of sets of random points, which were randomly placed at zip code centroids. The sets of random points served as a statistical base of point distributions created by chance. For both the suicides and the random points, SaTScan's algorithms searched for clusters and calculated the rate of occurrence for each cluster based on the underlying population at risk. For the population at risk we used the count

of persons aged 10 – 24 years within each ZCTA. Finally, SaTScan generated statistical measures of likelihood that the identified clusters of suicides would have occurred.

For the temporal cluster analysis, the date of each suicide-related injury was used as the primary input variable, and SaTScan searched for suicides that occurred closer in time than would be expected by chance. To simulate chance, the algorithm generated a statistical base of random sets of dates within the study period, with 189 dates in each set (the number of suicides for which the date of suicide-related injury was recorded). Temporal analyses were constrained and the lower and upper limits of the time span that could be considered a cluster were 1 day (lower limit) and 1 year (upper limit).

For all cluster analyses, a p-value of less than 0.05 were considered statistically significant.

Dataset limitations: Vital statistics data do not include information about where decedents went to school, making the assessment of differences in suicide rates by school district or individual school of attendance impossible. During initial conversations about the investigation with the community, train as the method of suicide was discussed as of particular interest. No ICD-9 or 10 code is currently available for train as a method of suicide. Due to this limitation it is not possible to use vital statistics data to systematically determine counts and rates of suicide by train using vital statistics data, and it was not possible to use vital statistics data to examine train as a method of suicide among youth in Santa Clara County in comparison to other age categories or other communities with similar population and commuter line density. Additional steps were taken to examine the characteristics of suicide by train, and these are described in the Suicide by Train portion of the Other Methodological Considerations section of this report.

For the spatial cluster analysis, analyses were based on zip codes. The long distances between some zip codes, however, represents a limitation of the analysis, and is reflected in the results. Zip Code Tabulation Areas in Santa Clara County vary in size from less than one half square mile to greater than 245 square miles. In terms of area, the largest cluster identified by SaTScan was centered in the southern

portion of the county, was greater than 26 miles in radius, and spanned two-thirds of the county's total area. That cluster underscores the need to use caution when interpreting SaTScan's outputs as statistical measures. The large cluster identified in the analysis was statistically less significant than nine other clusters found by SaTScan. In contrast, the most statistically significant cluster was centered in the north-western corner of the county, and was 2 miles in radius.

Medical Examiner Data

Background: While the Epi-Aid team was in the field, medical examiner reports for suicide deaths among youth age 10–24 that occurred in Santa Clara County from 2003 to 2015 were systematically abstracted into an electronic database. Variables abstracted included decedent demographics, method of suicide, location of suicide, and known circumstances reported to precipitate the suicide. The electronic database, variables, and data abstraction methods were modeled from CDC's National Violent Death Reporting System (NVDRS).[16] Variables abstracted used the same case definition as is used by NVDRS. Additional variables, created specifically for this investigation, were also included in the data abstraction process. This included whether the decedent used train as method of suicide and decedent behavior related to using train as method of suicide.

As part of the abstraction process, identifying information, such as the decedent's name, medical examiner number, date of birth, school name (if contained in the report), place of work, and residence location, were not included as abstracted variables. Any additional information that could potentially identify a decedent was also excluded from the abstraction. This exclusion was done to limit the possibility of identifying an individual decedent and to protect the confidentiality of the reports.

The agency requesting this Epi-Aid investigation was the CDPH on behalf of the SCCPHD. Therefore, the Epi-Aid team had access to medical examiner reports that were under the jurisdiction of the Santa Clara County Public Health Department. The medical examiner reports that were used for this

investigation, and that were under the jurisdiction of the Santa Clara County Public Health Department, were for individuals that died in Santa Clara County. Santa Clara County residents that died outside of the county were not within the jurisdiction of the health department and unavailable.

Case Definition: To be included in analyses of medical examiner data, the following case definition was used: (1) Death occurred in Santa Clara County, (2) County of residence listed as Santa Clara County, (3) Decedent 10 to 24 years of age, (4) Manner of death listed as suicide. Decedents that were residents of other counties and died in Santa Clara County were excluded from further analyses to focus analyses on residents of the county and allow for comparisons with decedents in other high income counties in other states.

Data Analyses: Descriptive statistics were used to calculate frequencies of precipitating circumstances. Bivariate analyses were conducted to compare characteristics of suicide decedents across groups, using Fisher's Exact and Chi-Squared tests.

Data were stratified by biological sex, and age category. Additional stratification by race/ethnicity and method of suicide, or additional stratification within biological sex or within age category were not conducted to limit the possibility of identification of an individual. For all analyses, associations with a p-value of less than .05 were considered statistically significant.

Dataset Limitations: Medical examiner reports from 2015 were preliminary and subject to change. Further, medical examiner reports in Santa Clara County did not typically include the final death certificate for each decedent. Demographic data were collected based on information in the medical examiner report or from preliminary death certificates included in the reports. Demographic data could have been updated upon the completion of the final death certificate and entry into vital statistics. This would include, but is not limited to, updates to place of residence, age, and race/ethnicity. Finally, medical examiner records were not linked to any other records, such as vital statistics, because

no identifying information was collected from the medical examiner records to help ensure confidentiality of the data.

Medical examiner and law enforcement reports included reported information about known precipitating circumstances for suicide decedents. In some cases, there were no known precipitating circumstances, and in other cases multiple circumstances were known. The investigation by medical examiner investigators depends on the information provided by family and friends of the decedent and circumstances included in investigative reports may not include all actual precipitating circumstances. Data presented from abstracted medical examiner reports are likely an underestimate of how common known precipitating circumstances were. Additionally, medical examiner reports contained limited information about the social networks of decedents or information about where decedents went to school or had gone to school, and it was not possible to use these data to determine whether precipitating circumstances for youth that had attended certain schools in Santa Clara County were distinct from other schools.

Finally, precipitating circumstances of decedents were compared to other suicide decedents and not living controls. Therefore, it was not possible to determine which precipitating circumstances were risk factors for suicide death in Santa Clara County. Comparing precipitating circumstances of suicide decedents to suicide attempt survivors would have allowed for an understanding of precipitating factors that distinguished fatal suicidal behavior from nonfatal suicidal behavior. Secondary data about precipitating factors for suicide attempt survivors were not available to conduct these types of analyses.

National Violent Death Reporting System Data

Background: The National Violent Death Reporting System (NVDRS) is a state-based active surveillance system that collects information about violent deaths in participating states. This includes collecting data about cases of suicide. Data from NVDRS were used to compare precipitating

circumstances of youth suicide decedents in Santa Clara County to youth suicide decedents in a pooled selection of counties in the United States.

Comparison County Selection: Santa Clara County is a high income, high density, and ethnically/racially diverse county.[1] Identifying a similar county on all three of these factors was not possible. Comparison counties were selected based on similar income-level. Using the U.S. Census Small Area Income and Poverty Estimates map, counties with a 2014 Median Household Income at $95,336 dollars and above were identified.[17] Per the U.S. Census map, the median household income of Santa Clara County is $97,219 (with a 90% confidence interval of $95,336 to $99,102). High income counties identified in participating NVDRS states were pooled together to create a comparison group. Comparison counties that were included were anonymized.

Case Selection: NVDRS data from 2003 through 2013, the most recent year of data available at the time of this investigation, were used. To compare to an equal time frame, Santa Clara County medical examiner data from 2003 to 2013 were used. NVDRS data from states that participated during all years from 2003 through 2013 were included, and comparison counties were identified. States that participated for all years from 2003 through 2013 were Alaska, Maryland, Massachusetts, New Jersey, Oregon, South Carolina, and Virginia. Youth suicide decedents from comparison counties were pooled together to form a comparison group. Decedents in comparison counties were included in comparison analyses if they met the following case definition: (1) County of residence listed as one of the comparison counties selected, (2) Abstractor manner of death listed as suicide, and (3) Decedent 10 to 24 years of age.

Variable Inclusion: Not all variables abstracted from the medical examiner reports in Santa Clara County have been collected by NVDRS for suicide decedents for all years of data (2003 through 2013) used in this investigation. Variables not collected during the entire time frame were excluded from

analyses. This includes the variables of family stressors/family relationship problems, arguments, suicidal ideation, and timing of arguments.

Data Analyses: Descriptive statistics were used to calculate frequencies of precipitating circumstances. Data were stratified by biological sex and age category. Additional stratifications (e.g., by race/ethnicity, method of suicide) were not conducted to limit the possibility of identification of an individual. Bivariate analyses were conducted to compare characteristics of suicide decedents in pooled comparison counties to decedents in Santa Clara County, using Fisher's Exact and Chi-Squared tests. For all analyses, associations with a p-value of less than .05 were considered statistically significant.

Dataset Limitations: NVDRS uses data from vital records, medical examiner/coroner reports, and law enforcement reports to characterize precipitating circumstances. For this investigation, some, but not all medical examiner reports abstracted in Santa Clara County also included law enforcement investigative reports or final death certificates. Therefore, comparisons between NVDRS comparison counties and Santa Clara County data could have been impacted by the differential sources of data.

Emergency Department Data

Background: Data on visits to all emergency departments in Santa Clara County, along with visits made to emergency departments outside of Santa Clara County by Santa Clara County residents, were obtained for the years 2005–2014. Datasets include demographic information and data on reasons for visit, diagnoses, treatment, and disposition at time of discharge. Individual, year-specific datasets for the years 2005–2014 were combined and analyzed, both by year and for the entire 2005–2014 time period.

Inclusion Criteria: The primary inclusion criteria for analyses for emergency department (ED) visits were (1) Patient was 10 to 24 years of age, (2) Patient was a resident of Santa Clara County, and (3) Visit was for suicide attempt/self-injury and/or suicidal ideation. Suicide attempt/self-injury was

defined based on the principal or any other diagnosis coded with ICD-9 external cause of injury codes (E-codes) in the range 950.0–959.9, corresponding to suicide attempt and self-inflicted injury. An ED visit was considered to be related to suicide attempt or self-injury if the principal or any other E-code fell in this range. Please note, the use of diagnostic codes precludes the distinction between suicide attempt and self-injury without suicidal intent (e.g., non-suicidal self-injury). Suicidal ideation was defined based on the corresponding ICD-9 code: V62.84; a visit was considered to be related to suicidal ideation if the principal or any other diagnosis had this code. ED visits related to suicide attempts/self-injury or suicidal ideation were retained in the final analysis sample.

Data Analyses: The total number of visits over time was plotted for suicide attempt/self-injury and suicidal ideation separately and combined. Frequencies and proportions of available demographics were obtained and stratified by visit type (suicidal ideation without suicide attempt/self-injury, suicide attempt/self-injury without ideation, and both). Logistic regression was used to assess the bivariate relationships between demographics and discharge status of transfer to psychiatric hospital or unit. Odds ratios (OR) and 95% confidence intervals (CIs) were calculated, with psychiatric transfer as the outcome and demographics as the predictors. An OR over one indicated that a demographic group was more likely to be transferred to a psychiatric hospital or unit, and an OR under one indicated that a demographic group was less likely to be transferred to a psychiatric hospital or unit. When a 95% CI around an OR included one, there was no statistically significant difference between demographic groups. For all analyses, associations with a p-value of less than .05 were considered statistically significant.

Crude predicted rates of ED visits for suicide attempt/self-injury for youth age 10–24 were calculated for selected cities with high or low suicide death rates (based on vital statistics analyses) using Poisson regression. Predicted rates were not calculated when the count was less than 10 to limit the possibility of identification of an individual. Relative standard error (RSE) was calculated for each

predicted rate to determine the stability of the estimate. A RSE of less than 30 was considered reliable for the purposes of this investigation. Population denominator data used for rate calculation were supplied by the Santa Clara County Public Health Department and were based on the 2010 U.S. Census. To put rates in context, data on crude rates of ED visits for suicide attempt from all California counties for the combined years 2006–2014 were obtained from California Department of Public Health's EpiCenter online injury data repository.[5] This time period represents the earliest and most recent available EpiCenter data. Crude ED visit rates using ED data were calculated for the same time period (2006–2014) to facilitate comparisons with EpiCenter data.

Dataset Limitations: Results from analyses of ED data for suicidal behavior should be interpreted with caution for a variety of reasons. ED data has been shown to be particularly insensitive in identifying the prevalence of suicide attempts and may underestimate the prevalence.[18] This limitation is because ED data only capture suicide attempts/self-injury that result in seeking care in the ED; attempts/self-injury that resulted in no care seeking or in seeking care at a private doctor's office or other non-ED facility would not be captured by these data.[19] Finally, data from the Youth Risk Behavior Surveillance System from other communities in the United States indicate that only a small portion of suicide attempts among high school-aged youth result in an injury that requires treatment from a nurse or doctor; therefore, underestimation could be of particular concern with the age group targeted by this investigation.[20]

While ED data are generally thought to underestimate the prevalence of nonfatal suicidal behavior, there are certain contexts in which ED data might be more sensitive in detecting suicide attempts and/or ideation.[18] If a community perceives that it is in the midst of a suicide cluster, additional efforts might be made to identify and treat those who are experiencing suicidal thoughts and/or those who make a suicide attempt, leading to more complete case ascertainment compared to times when no

[5] http://epicenter.cdph.ca.gov/ReportMenus/CustomTables.aspx

such community identified cluster is perceived. Additionally, if local efforts have been made to educate the community about suicide, this could also result in an increase in identification of youth with suicidal behavior.

The use of diagnostic codes to define a suicide-related ED visit further complicates the interpretation of the data. As with all case definitions that rely on provider use of diagnostic codes, the sensitivity of the data depends on their proper and consistent use by all providers. ED data could over- or underestimate prevalence of suicidal behavior depending on providers' abilities and/or willingness to apply the codes.[19,21] This may differ by provider, and may also change over time within providers. This complicates the interpretation of perceived changes in ED visits for suicidal behavior over time, as the changes could reflect actual prevalence changes, changes in the use of diagnostic codes, or a combination.

Use of diagnostic codes also precluded the distinction between suicide attempt and self-injury without suicidal intent. The number and rate of ED visits for suicide attempt are inflated by inclusion of non-suicidal self-injury. Finally, by definition, these data are at the visit level, not at the individual level, so it cannot be determined how many individuals are going to the emergency department, just the total number of visits. While the ED data contained a variable intended to uniquely identify individuals in order to tease out multiple visits, this variable contained missing values in nearly half of all visits and therefore it was not used.

Patient Discharge Data

Background: Data on all hospitalizations for suicidal behavior by Santa Clara County youth residents (ages 10–24) were obtained, for hospitals both within and outside of Santa Clara County. Datasets cover the years 2003–2014 and include demographic information and data on reasons for hospital admission, diagnoses, treatment, and disposition at time of discharge. Data from 2003 were

excluded from analyses due to low number of cases meeting inclusion criteria. Individual, year-specific datasets for the years 2004–2014 were combined and analyzed, both by year and for the entire 2004–2014 time period.

Inclusion Criteria: The primary inclusion criteria for analyses of hospitalizations were (1) Patient was 10 to 24 years of age, (2) Patient was a resident of Santa Clara County, and (3) Hospitalization was for suicide attempt/self-injury and/or suicidal ideation. Suicide attempt/self-injury was defined based on ICD-9 external cause of injury codes (E-codes) in the range 950.0–959.9, corresponding to suicide attempt and self-inflicted injury. A hospitalization was considered to be related to suicide attempt or self-injury if the principal or any other E-code fell in this range. Suicidal ideation was defined based on the corresponding ICD-9 code: V62.84; a hospitalization was considered to be related to suicidal ideation if the principal or any other diagnosis had this code. Hospitalizations related to suicide attempts/self-injury or suicidal ideation were retained in the final analysis sample.

Data Analyses: The total number of hospitalizations over time was plotted, for suicide attempt and suicidal ideation separately and combined. Hospitalization year was defined by the date of hospitalizations. Frequencies and proportions of available demographics were obtained, stratified by hospitalization type (suicidal ideation without an attempt, suicide attempt without ideation, and both). Logistic regression was used to assess the bivariate relationships between demographics and hospitalizations to out-of-county facilities. Odds ratios (OR) and 95% confidence intervals (CIs) were calculated, with hospitalizations outside of the county as the outcome and demographics as the predictors. An OR over one indicated that a demographic group was more likely to be admitted to an out-of-county facility, and an OR under one indicated that a demographic group was less likely to be admitted to an out-of-county facility. When a 95% CI around an OR included one, there was no statistically significant difference between demographic groups. For all analyses, associations with a p-value of less than .05 were considered statistically significant.

Crude predicted rates of hospitalizations for suicide attempt/self-injury for youth age 10–24 were calculated for selected cities with high or low suicide death rates (based on vital statistics analyses) using Poisson regression. Predicted rates were not calculated when the count was less than 10 to limit the possibility of identification of an individual. Relative standard error (RSE) was calculated for each predicted rate to determine the stability of the estimate. A RSE of less than 30 was considered reliable for the purposes of this investigation. Population denominator data used for rate calculation were supplied by the SCCPHD and were based on the 2010 U.S. Census. To put rates in context, data on crude rates of hospitalizations for suicide attempt from all California counties for the combined years 2006–2014 were obtained from California Department of Public Health's EpiCenter online injury data repository.[6] This time period represents the earliest and most recent available EpiCenter data. Crude hospitalization rates using patient discharge data were calculated using patient discharge data for the same time period (2006–2014) to facilitate comparisons with EpiCenter data.

Dataset Limitations: The limitations to patient discharge data parallel those of ED data; see above section on ED data limitations.

Developmental Assets Survey

Background: The Developmental Assets Survey was administered in the Fall of 2010 to 38,000 students across 200 schools in 25 school districts in Santa Clara County. Data from this survey were used to assess the prevalence of student assets, such as interpersonal skills, family support, caring school climate, and availability of youth programs, and associations with suicide attempt history. To take the survey, youth had to receive parental consent for participation. This survey was based on the Search Institute in Minnesota's *Profiles in Student Life: Attitudes and Behavior.*

[6] http://epicenter.cdph.ca.gov/ReportMenus/CustomTables.aspx

For this investigation, data from the Developmental Assets Survey administered to youth in elementary, middle, and high schools that are part of the Palo Alto Unified School District (PAUSD) were made available for analyses. Data from this survey were used to provide a snapshot of potential risk and protective factors for nonfatal suicidal behavior among students in PAUSD.

Inclusion Criteria: Analyses were restricted to data from high school students because high school students were asked about their history of suicide attempt, and there was sufficient sample size to examine associations with risk and protective factors. Among middle school students completing the Developmental Assets Survey in 2010, 5.7% (n=42) endorsed attempting suicide at some point in their lifetime. This sample size was too small for additional examination of factors associated with suicidal behavior. The Developmental Assets Survey that was administered to elementary school students did not assess suicidal behavior and was not examined.

Variable Selection: Selected variables that measure factors at the individual, interpersonal, and community levels of the SEM, and have been found to be associated with suicidal behavior among youth, were assessed. This included variables measuring self-esteem and perception of self, delinquent behaviors, sexual activity, substance use, depression, disordered eating, violence, family relationships, neighborhood relationships, and neighborhood safety, and school relationships. Variables that were not measured on a dichotomous scale were dichotomized to facilitate interpretations.

Data Analyses: Bivariate logistic regression was used to calculate odds ratios (OR) and 95% confidence intervals (CIs), with lifetime suicide attempt as the outcome variable, and risk/protective factors as the predictor variables. An OR over one indicated that a variable was a risk factor for lifetime suicide attempt, and an OR less than one indicated that a variable was a protective factor for lifetime suicide attempt. When a 95% CI around an OR included one, the variable was considered to be not statistically significantly associated with lifetime suicide attempt. For all analyses, associations with a p-value of less than .05 were considered statistically significant.

Dataset Limitations: The Developmental Assets Survey relies on self-reported responses from youth that had obtained parental consent to participate. The characteristics of youth that received consent to participate in the survey could have been different from those that did not, and this could have influenced survey results. For this investigation, data from the Developmental Assets Survey administered to other school districts in Santa Clara County were not available. The Palo Alto School District survey did not provide information about risk and protective factors for Santa Clara County overall or for other cities/school districts within Santa Clara County. Additionally, the Developmental Assets Survey is a cross sectional survey conducted at one point in time. Therefore, it is not possible to determine if the risk and protective factors examined were causes or consequences of nonfatal suicidal behavior. Finally, Developmental Assets is a school-based survey and does not provide information about risk and protective factors for youth no longer in school.

California Healthy Kids Survey

Background: The California Health Kids Survey (CHKS) is a school-based, web and paper-based, survey conducted to help school districts understand the health and well-being of students in their school system.[22] School districts in Santa Clara County have implemented this survey among elementary, middle and high school students to help guide school improvement efforts. To participate in the survey, youth must receive parental consent. Not all school districts in Santa Clara County participate in CHKS during each year of administration, and not all school districts in Santa Clara County have asked about suicidal behavior at each survey administration. Also, Palo Alto Unified school district conducted a Special Module in the 2015–2016 administration, and these data were made available for analyses. The Special Module is a series of questions that individual school districts opt to include in the CHKS administration within their district. As part of this investigation, datasets from Santa Clara County from the years of 2003 through 2016 were examined.

Variable Selection: CHKS data were used to identify factors associated with seriously considering suicide in the 12 months prior to completion of the survey (hereafter referred to as past year suicidal ideation), and factors associated with attempting suicide in the 12 months prior to completion of the survey (hereafter referred to as past year suicide attempt). Selected variables that measure risk and protective factors at the individual, interpersonal, and community levels of the SEM were assessed. This included variables measuring substance use, exposure to bullying, mental distress, and relationship with school. Variables included had to have been collected across all school districts participating at all survey administrations. Variables from the Special Module used in the Palo Alto Unified school district from 2015-2016 include those asking about individual level perceptions, relationships with parents or adults in the home, relationships with teachers, social support and connectedness, school culture, and sleep related difficulties.

Inclusion Criteria: Risk and protective factors for past year suicidal ideation were assessed in three ways. The first was using data aggregated across school districts that asked high school students about past year suicidal ideation in 2013–2014 CHKS administration. The second was using data from individual school districts that asked high school students about past year suicidal ideation in the 2013–2014 CHKS administration. The third was using data from the Palo Alto Unified school district Special Module from the 2015–2016 administration which asked about past year suicidal ideation and suicide attempt. Analyses were restricted to public high school students (excluding elementary and middle school students) because high school students were asked about past year suicidal ideation and had a large enough sample size for analyses. Data from school districts, but not individual schools, were used so that the sample size was large enough to examine the association between past year suicidal ideation, and factors at the individual, interpersonal, and community levels, comparing across school districts.

Risk and protective factors for past year suicide attempt were assessed in the following way. Data were examined in aggregate across school districts that assessed past year suicide attempt during

the 2013–2014 CHKS administration. Data pooled across school districts were used so that the sample size was large enough to examine the association between past year suicide attempt and factors at the individual, interpersonal, and community levels. Analyses were restricted to public high school students because high school students were asked about past year suicide attempt and had a large enough sample size for analyses.

Data Analyses: Descriptive statistics were used to calculate prevalence of past year suicide attempt and suicidal ideation. Bivariate logistic regression was used to calculate odds ratios (OR) and 95% confidence intervals (CIs), with past year suicidal ideation or past year suicide attempt as the outcome variable, and risk/protective factors as the predictor variables. An OR over one indicated that a variable was a risk factor for the suicidal behavior in question, and an OR less than one indicated that a variable was a protective factor for the behavior. When a 95% CI around an OR included one, the variable was considered to be not statistically significantly associated with the behavior. Multivariable logistic regression was also used, with suicide behavior as the outcome and all significant risk and protective factors included as predictor variables. All analyses were conducted to accommodate data weights included in the Santa Clara County CHKS datasets. Data weights in the CHKS dataset were developed by survey administrators so that data would be more representative of students in the county. Weights were applied to all analyses except those from the Palo Alto Unified school district Special Module from the 2015–2016. For all analyses, associations with a p-value of less than .05 were considered statistically significant.

Dataset Limitations: To participate in CHKS, youth are required to have parental consent.[22] Per the documentation by California Healthy Kid, this has been identified as potentially influencing the results of the survey.[22] The results of CHKS may not be generalizable to all youth in Santa Clara County or in specific school districts because the characteristics of youth that received consent to participate in the survey could have been different from those that did not, which could have influenced survey results.

Per the recommendations of California Healthy Kids, comparisons across years of survey administrations and across school districts should be made with caution. This is because there may be sample, participation procedural/methodological, item, and contextual differences across survey administrations.[23] These methodological and contextual considerations could influence prevalence of certain variables (e.g., suicidal ideation). A change in prevalence of suicidal ideation or suicide attempt over time may not be due to an actual increase/decrease but could be a reflection of changes in survey administration. Finally, not all school districts participated in the survey each year, and not all school districts assessed suicidal behavior. Prevalence estimates that change over time could be explained by the changing participation of school districts.

With regard to past year suicide attempt, there was considerable missing data which limited the types of analyses that could be conducted, including an examination of risk and protective factors for past year suicide attempt by school district. Therefore, it was not possible to examine risk and protective factors for past year suicide attempt across different school districts. Additionally, CHKS is a cross sectional survey conducted at one point in time, and it is not possible to determine if the risk and protective factors examined were causes or consequences of nonfatal suicidal behavior.

Finally, CHKS was only able to provide information on risk and protective factors for suicidal behavior among older, school age, youth. Younger, school age, youth, such as those in middle and elementary schools, were either not asked about suicidal ideation, or were asked but the sample size was small. Additionally, CHKS is a school-based survey and it did not provide information about risk and protective factors for youth no longer in school in Santa Clara County.

Project Safety Net Community Survey

Background: The Project Safety Net Community Survey was used to understand the knowledge and perceptions of suicide and suicide prevention among individuals within, and connected to, the Palo

Alto community. The survey was developed by Project Safety Net, a community based group focused on improving well-being of youth in Palo Alto and was administered by Project Safety Net in Spring/Summer 2016. Participants for the survey were recruited through convenience sampling and a link to the survey was placed on Project Safety Net's webpage. The survey items examined knowledge, attitudes, and perceptions of suicide deaths that have occurred in Palo Alto.

Inclusion Criteria: Analyses were restricted to respondents that: (1) Completed the survey and (2) Indicated/self-reported that they were residents of Palo Alto.

Variables: The following variables within the Project Safety Net Survey were used: (1) Demographic characteristics: Respondents were asked multiple demographic questions. Those used in these analyses were place of residence, current student status, current parent status, and whether the participant ever taken Question Persuade Refer (QPR) suicide prevention training; (2) Perception of Suicide: Respondents were asked how much they agreed with various statements about suicide on a 5-point scale of "strongly agree" to "strongly disagree." Example items include, but are not limited to, the following: suicide is preventable, suicide is bound to happen, suicide is shameful, suicide is something to be hidden, and I am comfortable talking about suicide with my family and friends. Items were dichotomized to facilitate interpretation (i.e., "strongly agree" and "agree" coded as "agree"; "strongly disagree," "disagree," and "neutral" coded as "disagree"); (3) Perception of Risk Factors: Respondents were asked how much various risk factors contribute to suicide in Palo Alto on a continuous scale of 0 to 100 (0=not at all related, 100=highly related). Example risk factors include, but are not limited to, the following: academic distress, bullying, childhood trauma, poor coping skills, unsafe reporting by media; (4) Support for Prevention: Respondents were asked how much they support suicide prevention efforts in Palo Alto on a 5-point scale of "not at all supportive" to "very supportive." Example items include, but are not limited to, the following: efforts to improve access to mental health providers, efforts to strengthen culturally tailored mental health services for diverse communities, require suicide prevention

training for all who work with youth. Items were dichotomized to facilitate interpretation (i.e., "very supportive" and "supportive" coded as "supportive"; "not at all supportive," "not supportive," and "neutral" coded as "not supportive").

Data Analyses: Responses from current students in Palo Alto and current parents of Palo Alto students were compared using logistic regression for items assessing Perception of Suicide and Support for Prevention. Logistic regression was used to calculate odds ratios (OR) and 95% confidence intervals (CIs) with student status as the predictor variables. An OR over one indicated that current students had higher levels of agreement (for Perception of Suicide items) or support (for Support for Prevention items) than current parents, and an OR less than one indicated that students had lower levels of agreement or support than current parents. When a 95% CI around an OR included one, there was no statistically significant difference between current parents and current students. Wilcoxon Signed Rank tests were used to compare current students and current parents on mean Perception of Risk. For all analyses, associations with a p-value of less than .05 were considered statistically significant.

Dataset Limitations: The Project Safety Net community survey utilized a convenience sample of respondents that completed the survey online. Due to the sampling strategy the results are not generalizable to all current parents or students in Palo Alto. Also, the survey relied on self-report; therefore, those responding to the survey may have falsely indicated that they were a resident, a parent, or a student. The results of the survey and comparisons made between current parents and students should be made with caution. Finally, the survey focused on perceptions of youth suicide in Palo Alto, and analyses were restricted to self-reported residents of Palo Alto. This survey does not provide information about perceptions or attitudes about suicide in Santa Clara County overall, or perceptions and attitudes about suicide among residents of other Santa Clara County communities.

Media Reporting

Background: Objective 2 of this investigation was to examine the degree to which media coverage from 2008 through 2015[7] of youth suicides occurring in Santa Clara County, California, met accepted safe suicide reporting guidelines. To meet this objective, a media scan was conducted, to systematically code media articles using accepted guidelines for safe reporting on suicide as a coding guide.[24]

Article Identification: A three-pronged search strategy was used to identify a sample of media articles to be included in the scan: (1) Multiple local/regional online news outlet archives were manually searched using the term "suicide." Local/regional online news outlets were those based in Santa Clara County or the greater Bay Area. For the local sources, the search term "suicide" was focused enough to obtain articles that were specific to suicides that occurred in, or around, Santa Clara County. Selection of local/regional news outlet was informed by SCCPHD and community stakeholder recommendations; (2) News outlets indexed in ProQuest Newsstand were searched using search terms "Palo Alto and suicide" and "Palo Alto and suicide attempt." ProQuest Newsstand is a national repository and additional parameters (beyond "suicide" or "suicide attempt") were needed to focus the search. The search terms "Palo Alto and suicide" and "Palo Alto and suicide attempt" were used to refine the search strategy and to identify media articles that covered suicide deaths in Palo Alto, which was the community where a community-identified cluster had occurred. To note, this ProQuest search identified articles from sources in and around Santa Clara County, about suicide deaths and attempts in Palo Alto and other cities in Santa Clara County. The ProQuest Newsstand search was a complement to the manual search of local/regional online news outlets; (3) SCCPHD and community partners searched one local print-only

[7] This represents the initial time-frame of focus for this investigation. From 2008–2015 there were a total of 156 youth, age 10–24, suicide deaths that occurred in Santa Clara County; representing 66.4% of all youth suicide deaths that occurred in Santa Clara County during this time period. The time frame for the media scan was different than what was used for CDC WONDER, vital statistics, and medical examiner data because as the Epi-Aid data abstraction of medical examiner reports was planned and began, the community requested extending data abstraction of medical examiner reports to include 2003–2015. Therefore, data from 2003–2015 were examined for fatal suicidal behavior when data were available and applicable.

news outlet for articles about suicide and provided the Epi-Aid team with electronic versions of the resulting articles. This one print-only news outlet was included due to local stakeholder concern for the content of coverage of suicide deaths.

Inclusion Criteria: All articles identified through the aforementioned strategy were reviewed to determine if they met inclusion criteria for the media scan. Articles were included in the media scan if they were published in English and met the following inclusion criteria: (1) Article reported on a specific individual incident or incidents of suicide or suicide attempt (of individuals of all ages); (2) Article reported about an incident that occurred in Palo Alto, Santa Clara County, or the Greater Bay Area; and (3) Article had a publication date between 1/1/2008 and 12/31/2015.

Exclusion Criteria: Articles were excluded from the media scan if they met the following exclusion criteria: (1) Article reported on a specific individual incident, or incidents, of murder-suicide, assisted suicide, or "suicide by cop"; (2) Police/Crime blotters; (3) Articles about suicide prevention in general; (4) Obituaries; and (5) Op-Ed, letter to the editor, or open-post articles not written by a news outlet affiliated writer.

Coding Methods: To code articles, a checklist of article characteristics was developed, informed by accepted guidelines for safe reporting on suicide.[24] Additional elements were included on this checklist based on the specific context of suicides within Santa Clara County. If a characteristic was present in an article, that item was checked on the list, and explanations were entered where necessary. Age of the article's subject and the total number of comments if the article had an open comments section were also recorded. One individual coder coded the majority of article using the standard checklist. A selection of articles was double coded to standardize coding between this principal coder and additional coders. The coding for each of the double coded articles was discussed to facilitate standardization of coding between reviewers and to resolve discordant codes.

Data Analyses: Frequency and percent of articles containing each of the characteristics were obtained for articles by year and by source (for the combined years 2008–2015). The number of articles meeting inclusion criteria over time was examined. Presence of characteristics was examined by year to assess changes in reporting over time, and by source to assess differences in reporting among sources (sources were anonymized).

Media Scan Limitations: The media scan was not designed, or intended, to be a complete and comprehensive examination of all media coverage for suicide deaths in Santa Clara County and surrounding areas. The search strategy used may have missed certain articles (e.g., articles not in the English language), and the exclusion criteria excluded articles about suicide prevention in general and Op-Ed articles. These excluded articles could have also violated, or adhered to, some of the safe suicide reporting guidelines. A second limitation of the media scan was that coding of some article elements can be subjective. However, one individual coded the majority of articles using the standard checklist. Additionally, repeated discussions were had with coders for the remaining minority of reports and discordant codes were discussed to achieve and maintain consistency. Also, pulling articles from previous years could have resulted in use of archived versions that displayed photos, headlines, and other elements differently than in the original article. This could have impacted how consistent the article was with reporting guidelines and how the article was coded. In spite of these limitations, the purpose of the media scan was to provide an overall snapshot of reporting to provide guidance to the Epi-Aid team when developing recommendations, and the articles identified and coded provide information about strengths and limitations of current and past reporting. Additionally, the scan was intended to provide a starting point to inform collaboration between community stakeholder and media outlets about safe reporting strategies.

Inventory of Programs and Policies

Background: The third objective of this investigation was to inventory and compare youth suicide prevention policies, activities, and protocols used in the community to evidence-based and national recommendations. Policies, activities and protocols used in the community were compared to national recommendations to determine the degree to which local efforts are consistent with these recommended strategies. To meet this objective, SCCPHD and community partners identified suicide prevention programs and policies being utilized in Santa Clara County at the time of the Epi-Aid. A list of these activities, along with collected materials (e.g., flyers, reports), were shared with the Epi-Aid team.

Inclusion Criteria: To be included in the final inventory, the program, policy, plan or activity had to meet the following inclusion criteria: (1) Explicitly focused on suicide prevention, and (2) Current/ongoing program, policy, plan, or activity.

Exclusion Criteria: Programs, policies, plans, and activities were excluded if they: (1) Focused on/were related to risk factors for suicidal behavior, such as mental health or bullying, but not focused explicitly on suicide prevention, or (2) Focused on suicide prevention but were not currently being used/implemented.

Inventory Method: Programs, policies, plans, and activities were inventoried in an excel spreadsheet matrix. Each program, policy, plan and activity shared with the Epi-Aid team was reviewed and entered into the matrix. Each item was inventoried for the following characteristics: type (e.g., policy, report/toolkit, activity/program), focus/content (e.g., education, clinical, gatekeeper, crisis), target (e.g., parent, adult, youth, clinician, school), whether evaluated, and whether it constituted an evidence-based suicide prevention program. This was assessed by examining programs and policies identified by the Epi-Aid team in relation to: (1) programs and policies described in CDC's Suicide Prevention Technical Package[25]; and (2) programs and policies listed as "Programs with Evidence of

Effectiveness" within the Suicide Prevention Resource Center (SPRC) Programs and Practices database. Programs listed in the SPRC Programs and Practices database are identified through SAMHSA's National Registry of Evidence-Based Programs and Practices (NREPP),[26] and through SPRC's Evidence-Based Practices Project.[27] Descriptive statistics were used to describe the characteristics of programs and policies being utilized.

Inventory Limitations: The suicide prevention program and policy inventory was not designed, or intended, to be a complete examination of all suicide prevention programs and policies being used in Santa Clara County. Nor was it designed to be a formal asset assessment or program evaluation that would allow for the identification of gaps in current programming or particular programs to continue or discontinue. The suicide prevention program and policy inventory was based on materials provided to the Epi-Aid team for review and assessment, and this may not have been an exhaustive list of all specific suicide prevention activities implemented across Santa Clara County. Additionally, information used in the inventory matrix was based on materials shared with the Epi-Aid team, such as flyers, reports, or plans. These materials were used to determine the target and content of the program, policy, or activity, and whether or not they were being evaluated. These materials may not have included all information about the targets or evaluation efforts associated with each program or policy. Additionally, many of the programs and policies were focused on youth that are in school, and many were being implemented in the city of Palo Alto. Therefore, this inventory did not provide extensive information on suicide prevention programs and policies being implemented in other communities and school districts or other programs being conducted for non-school-age youth. Finally, programs, policies and activities shared with the Epi-Aid team included those focused on other content areas related to suicide prevention (e.g., mental health promotion, bullying prevention, substance and alcohol use education). For the purposes of this investigation, however, the inventory was limited to those that were explicitly focused on suicide prevention.

In spite of these limitations, the purpose of the inventory was to provide a snapshot of current suicide prevention programs and policies being utilized and an example of how those programs can be compared and contrasted with strategies included in CDC's Suicide Technical Package. Additionally, the inventory was intended to provide a starting point to inform more comprehensive strategic planning, asset mapping, and program evaluation by community stakeholders.

Ethical Considerations

To ensure confidentiality and limit the possibility of identification of an individual, data were suppressed when a cell size was less than 10 individuals. Per the *2005 CDC-ATSDR Data Release Guidelines and Procedures for Re-release of State-Provided Data*, certain data were not presented even with a cell size larger than 10 individuals depending on topic sensitivity, variable format (e.g., categorical or continuous), geographic level of detail, and population/subgroup denominator size. For all analyses, efforts have been made to ensure data are presented in a way that would not lead to the identification of an individual.

Other Methodological Considerations

Suicide Clusters

There is literature describing the concept of suicide clusters, which CDC defines as "a group of suicides or suicide attempts, or both, that occur closer together in time and space than would normally be expected in a given community."[15] Suicide clusters can be community identified or statistically verified. Community identified suicide clusters are groups of suicides that are identified by a community to be unusually close in time and space, or that are of particular concern within the community for other reasons. A statistically verified suicide cluster is a group of suicides that are determined through statistical analyses to be significantly closer to one another in time and/or space than what would be expected by chance.

It is recommended that investigations of community identified clusters do not start with a statistical verification of the suicide cluster.[18] This is because communities that perceive that a cluster is occurring may have emotional responses to this perception and could benefit from an investigation to develop recommendations for how to prevent suicide in their community, regardless of the presence of a statistically verified cluster.[18] Although the statistical verification of a cluster is not a prerequisite for an investigation, or for the implementation of suicide prevention activities, it is nonetheless an important element of an epidemiological investigation. Identifying a temporal and/or spatial cluster through analyses can provide additional epidemiological information about areas in a community that may need targeted intervention or programming and can add to an overall understanding of suicide in a community. Furthermore, it is reasonable to assume that some spatial or temporal suicide clusters might not be detected by community perception, while public health surveillance for suicide clustering using statistical techniques might identify additional clusters and allow for timely intervention.[15]

There are many challenges to identifying and defining a suicide cluster. First, suicide is a low base rate event, and as a result, any analyses of suicide clusters are based on small numbers. The small

sample size can influence the types of analyses that can be conducted and can also impact whether a group of suicides is found to be statistically significantly outside of what would be expected. Additionally, because suicide is a low base rate event, one or two additional deaths by suicide may appear to represent an increase while from an epidemiological perspective these suicides may not outside of what is expected for a certain community. Second, assessing how close in time and space suicides occur is impacted by the size of the community and its underlying rate of suicide.[15] Third, the identification of a cluster can be impacted by misclassification of suicide deaths and the geographic boundaries used for analyses.[18]

For this investigation temporal and spatial cluster analyses were conducted to provide additional information about the epidemiology of suicide in Santa Clara County. For these analyses, the CDC definition for a suicide cluster was used, with a cluster defined as a group of suicide that occurred closer together in time and space that would be normally expected in Santa Clara County based on zip code of residence and date of suicide-related injury.[15]

Contagion

Suicide contagion is a concept that has been used as an analogy to describe the hypothetical spread of suicidal behavior across populations and groups.[28,29] The terminology of contagion has been adapted for use in suicidology from infectious disease research.[28,29] There are multiple definitions of the concept of contagion in the context of suicidology, and multiple hypothesized mechanisms that have been developed to explain this concept.[28,29] Many of these definitions are vague, making it difficult to empirically assess the concept of suicide contagion.[30] To date, there is limited scientific evidence supporting the hypothesis that suicidal behavior is contagious.[28] There is research that has suggested potential for population level suicidal behaviors to increase as a result of media reporting; however, the degree to which this evidence supports the concept of contagion is not clear.[31] Due to the limitations of

the current state of research, the use of the terminology of suicide contagion should be made with caution.[28] This includes use of caution when ascribing that a suicide cluster is the result of suicide contagion because the presence of a suicide cluster does not imply that contagion has occurred.[28,30]

For this Epi-Aid investigation, medical examiner reports were examined to determine whether there were indications that youth suicide decedents knew one another, whether they had known someone to die by suicide, and whether there was an indication that these suicides influenced their decision for suicide. This was assessed by reading medical examiner investigative reports, suicide notes, and other accompanying materials for indications that the suicide of another person influenced the suicide decedent. This approach was used because exposure to a suicidal person, or someone that has died by suicide, is a recognized risk factor for mental health distress and for fatal and nonfatal suicidal behavior.[32,33] Therefore, determining whether youth had previous exposure to suicidal individuals could suggest that this was a precipitating factor and could be used to inform recommendations for suicide prevention programs and strategies. This approach is limited, however, because it relies on the contents of the medical examiner investigative report which may or may not have contained information about the decedent's exposure to suicide or suicidal people in the past.

Suicide by Train

During initial conversations about the investigation with the community, train as the method of suicide was discussed as of particular community interest. An examination of suicide by train using data from sources, such as vital statistics and CDC WONDER, was not possible in this investigation. Currently, there are no ICD-9 or 10 codes available for train as a method of suicide. It is not possible to use vital statistics data to accurately, and systematically, capture suicide by train as a method of suicide. For this investigation, additional analyses to examine trends and rates of suicide by train in the same

way as suicide by firearm, suffocation/hanging, or poisoning were not conducted due to limitations of current data systems.

To overcome this limitation, a variable for "suicide by train" was included in the data abstraction process for medical examiner reports. This allowed for an examination of reported precipitating circumstances among decedents that used train as the method of suicide. Research has been conducted by the Mineta Transportation Institute at San Jose State University to describe suicide by commuter rail in the Bay Area Region of California, and the citation can be found in the references section of this report.[34]

Results: Objective 1

Objective 1: Characterize the epidemiology of, and trends in, fatal and nonfatal suicidal behaviors among youth occurring from 2003 through 2015[8] in Santa Clara County, California; and data permitting, compare characteristics at multiple levels, such as school districts and cities.

Data Sources Used: CDC WONDER, vital statistics, medical examiner reports, National Violent Death Reporting System, emergency department data, patient discharge data, Developmental Assets Survey, California Healthy Kids Survey, and Project Safety Net Community Survey.

CDC WONDER

Crude suicide rates per 100,000 for 2-year periods of time, for youth, age 10–24, are presented in Figure 1. Two consecutive years of data were combined to allow for the calculation of reliable and stable estimates based on CDC WONDER reporting requirements. Across all two year time periods, the crude rate of suicide for youth ages 10–24 who were residents of Santa Clara County was similar to the crude suicide rate for youth ages 10–24 who were residents of California during 2003–2014. Across all two year time periods, the crude rate of suicide for youth ages 10–24 who were residents of Santa Clara County was lower than the crude suicide rate for youth ages 10–24 who were residents of the United States during 2003–2014.

The crude suicide rate for youth residents, age 10–24, of Santa Clara County was compared to the crude suicide rate of youth residents of other counties in the state of California (Figure 2). Data from the years of 2003 through 2014 were combined to allow for the calculation of reliable crude suicide rates for counties with low counts. Several counties were excluded from Figure 2 because calculation of crude rates for several California counties was not possible due to low counts.

The crude suicide rate for the combined years of 2003–2014 for youth residents, age 10–24, of Santa Clara County (5.4 per 100,000; 95% CI: 4.7–6.1) was similar to the crude suicide rate for youth

[8] The initial time-frame of focus for this investigation was 2008–2013. As the Epi-Aid data abstraction of medical examiner reports was planned and began, the community requested extending data abstraction of medical examiner reports to include 2003–2015. Therefore, data from 2003–2015 were examined for fatal suicidal behavior when data were available and applicable.

residents, age 10–24, of the state of California for the same time period (5.3 per 100,000; 95% CI: 5.1–5.4), and similar to the crude suicide rate of youth residents, age 10–24, of San Mateo County (5.6 per 100,000; 95% CI: 4.7–6.1), Santa Cruz County (5.3 per 100,000; 95% CI: 3.8–7.2), and Alameda County (5.0 per 100,000; 95% CI: 4.3–5.8). Counties with the highest crude suicide rate among youth, age 10–24, for the combined years of 2003–2014, were residents of Mendocino County (16.2 per 100,000; 95% CI: 11.1–22.8), Lake County (15.2 per 100,000; 95% CI: 9.4–23.2), Humboldt County (12.5 per 100,000; 95% CI: 9.1–16.7), Nevada County (12.4 per 100,000; 95% CI: 8.0–18.4), Shasta County (11.5 per 100,000; 95% CI: 8.5–15.2), and Yuba County (10.2 per 100,000; 95% CI: 6.2–15.7). These counties are primarily in Northern California.

Crude suicide rates for youth residents, age 10–24, of Santa Clara County, the state of California, and the United States were also stratified by method of suicide (Figure 3). Data from the combined years of 2003–2014 allowed for the calculation of reliable rates for method of suicide with low counts. Crude suicide rates were only calculated for the following methods of suicide because the number of deaths for other methods of suicide in Santa Clara County was less than 20 individuals: firearm, poisoning, and hanging/suffocation. Rates for other methods of suicide in Santa Clara County that were not calculated due to small sample size included falls and "other specified classifiable injury." The crude rate for suicide by firearm (1.2 per 100,000; 95% CI: 0.9–1.6) for the combined years of 2003–2014 for youth residents, age 10–24, of Santa Clara County was similar to the crude suicide rate for suicide by firearm among youth residents of California (1.7 per 100,000; 95% CI: 1.6–1.8). The crude rate for suicide by firearm (1.2 per 100,000; 95% CI: 0.9–1.6) for the combined years of 2003–2014 for youth residents, age 10–24, of Santa Clara County was lower than the crude suicide rate for suicide by firearm among youth residents of the United States (3.4 per 100,000; 95% CI: 3.3–3.4). The crude rates of suicide by poisoning (0.6 per 100,000; 95% CI: 0.4–0.8) and hanging/suffocation (2.5 per 100,000; 95% CI: 2.0–3.0) for the combined years of 2003–2014 among youth residents, age 10–24, of Santa Clara County

was similar to those for the state of California (poisoning: 0.5 per 100,000; 95% CI: 0.4–0.5; suffocation: 2.4 per 100,000; 95% CI: 2.3–2.4) and the United States (poisoning: 0.6 per 100,000; 95% CI: 0.6–0.6; suffocation: 2.9 per 100,000; 95% CI: 2.9–2.9).

Crude suicide rates for youth by racial group were also examined for Santa Clara County, the state of California, and the United States (Figure 4). Data from the combined years of 2003–2014 allowed for the calculation of reliable rates for racial categories with low counts. Crude rates were only calculated for Asian/Pacific Islander and White racial groups because the number of suicides in the examined time frame for other racial groups (i.e., Black or African American, American Indian or Alaska Native) in Santa Clara County was less than 20. Furthermore, CDC WONDER does not provide rates by combined race/ethnicity group; therefore, it was only possible to examine race and ethnicity separately.

The crude suicide rate among Asian/Pacific Islander residents, age 10–24, of Santa Clara County (4.4 per 100,000; 95% CI: 3.3–5.7) was similar to the state of California (4.4 per 100,000; 95% CI: 4.0–4.8) and the United States (4.9 per 100,000; 95% CI: 4.7–5.1) during the combined years 2003–2014. The crude suicide rate for White youth, age 10–24, who were residents of Santa Clara County (5.8 per 100,000; 95% CI: 4.9–6.8) was lower than the crude suicide rate for residents, age 10–24, of the United States (8 per 100,000; 95% CI: 7.9–8.1) during the same time period. There was no difference in the crude suicide rate among Asian/Pacific Islander or White, residents, age 10–24, of Santa Clara County when compared to rates for the state of California. The crude suicide rate in Santa Clara County for Hispanic/Latino youth, age 10–24, and of all races was similar to the rate in the state of California and lower than the rate for the United States (Figure 5) during the combined years of 2003–2014. The crude suicide rate in Santa Clara County for non-Hispanic/Latino youth (6.2 per 100,000; 95% CI: 5.3–7.2), age 10–24, of all races was similar to the rate in the state of California (6.5 per 100,000; 95% CI: 6.2–

6.7) and less than the rate for the United States (8.0 per 100,000; 95% CI: 7.9–8.1) during the same time period.

The crude suicide rate by biological sex was examined for Santa Clara County, the state of California, and the United States (Figure 6). Data from 2003 through 2014 were combined to allow for the calculation of stable rates. During the combined time period of 2003–2014, the crude suicide rates for male youth residents of Santa Clara County, California, and the United States were higher than the rates for female youth residents of Santa Clara County, California, and the United States. The crude rate of suicide among male youth residents, age 10–24, of Santa Clara County (7.7 per 100,000; 95% CI: 6.6–8.9) was lower than the rate for male youth residents of the United States (11.8 per 100,000; 95% CI: 11.7–11.9) during the combined time period of 2003–2014. The crude rate of suicide among male youth residents, age 10–24, of Santa Clara County (7.7 per 100,000; 95% CI: 6.6–8.9) was similar to male youth residents of California (8.1 per 100,000; 95% CI: 7.8–8.3) during the combined time period of 2003–2014. The crude rate of suicide among female youth residents of Santa Clara County (2.9 per 100,000; 95% CI: 2.2–3.7) was similar to the rate for female youth residents of California (2.3 per 100,000; 95% CI: 2.2–2.4) during the same time period. The crude rate of suicide among female youth residents of Santa Clara County (2.9 per 100,000; 95% CI: 2.2–3.7) was similar to the rate for female youth residents of the United States (2.8 per 100,000; 95% CI: 2.8–2.9) during the same time period.

Finally, the crude suicide rate for youth, age 10–24, by 5-year age group was examined for the combined years of 2003–2014 (Figure 7). Rates were not calculated for the age range of 10–14 for Santa Clara County because the count was too small for the calculation of stable/reliable rates per CDC WONDER reporting standards. When compared to youth age 15–19, the crude suicide rate was higher among young adults aged 20–24 who were residents of Santa Clara County (9.1 per 100,000; 95% CI 8.5–11.9 vs. 4.6 per 100,000; 95% CI 4.3–6.9), California (9.4 per 100,000; 95% CI 9.3–10.0 vs. 5.1 per 100,000; 95% CI 5.0–5.5), and the United States (12.9 per 100,000; 95% CI 12.9–13.2 vs. 7.7 per

100,000; 95% CI 7.6–7.8), during the combined years of 2003–2014. Overall, the crude suicide rate for youth in Santa Clara County for 15 to 19 year-olds (4.6 per 100,000; 95% CI: 4.3–6.9) and 20 to 24 year-olds (9.1 per 100,000; 95% CI: 8.5–11.9) was lower than the suicide rate for 15 to 19 year-olds (7.7 per 100,000; 95% CI: 7.6–7.8) and 20 to 24 year-olds (12.9 per 100,000; 95% CI: 12.9–13.2) in the United States during the combined time period of 2003–2014.

Vital Statistics

Case Definition 1

Using Case Definition 1[9], there was a total of 235 suicide deaths that *occurred in* Santa Clara County among youth, age 10–24, during the combined years of 2003–2015[10]. This includes residents of other counties that died in Santa Clara County, as well as residents of Santa Clara County that died in Santa Clara County.

Youth ages 10–24 who were suicide decedents n Santa Clara County during the combined years of 2003–2015 had an average age of 20.2 years old (Standard Deviation (SD) 2.9, Range 12–24), with 63.4% (n=149) of decedents age 20–24 (Table 1). Over three quarters of the youth decedents (76.2%, n=179) ages 10–24 whose deaths occurred in Santa Clara Country during the years of 2003–2015 were male; over a third (37.9%, n=89) were White, Non-Hispanic; 28.1% (n=66) were Hispanic of any race; 24.7% (n=58) were Asian/Pacific Islander, Non-Hispanic; and 6.8% (n=16) were Black, Non-Hispanic.

Data about city of suicide-related injury were only available for the years 2005 through 2015 (Table 2). Please note, city of suicide-related injury is the city where the fatal suicide injury occurred. This may or may not have been the city where the individual died. The most common cities of residence

[9] **Case Definition 1**: (1) County of death listed as Santa Clara County, (2) Decedent 10 to 24 years of age, (3) Manner of death listed as suicide. This case definition was used to understand the characteristics of youth that died *in* Santa Clara County regardless of where they were injured or their place of residence.

[10] Vital statistics death data from 2003–2015 were examined as part of this investigation, with data from 2015 preliminary and subject to change.

for the youth decedents ages 10–24 who died in Santa Clara County during the combined time period of 2003–2015 was San Jose (41.7%, n=98). The most common city of fatal suicide-related injury was in San Jose (43.8%, n=89) during the combined time period of 2005–2015.

An Epi-Curve was constructed to present the count of suicide deaths that occurred in Santa Clara County, by year, among youth ages 10–24 during the years of 2003–2015 (Figure 8). The number of suicide deaths that occurred in Santa Clara County, among youth age 10–24 has varied over time, with 13 deaths occurring in 2010 and 26 deaths occurring in 2011. Rates of suicide were not calculated using Case Definition 1 because this case definition included non-Santa Clara County residents, making it difficult to determine the total population for the denominator of the rate calculation. Without rate calculations, determining whether counts per year represent significant changes in suicide rate was not possible.

Case Definition 2

Using Case Definition 2[11], from the combined years of 2003–2015, there was a total of 229 suicide deaths that *occurred in* the state of California among youth ages 10 to 24 whose *residence* was in Santa Clara County. This includes residents of Santa Clara County that died outside of Santa Clara County (Table 3).

Youth, age 10–24, suicide decedents who died in California and whose residence was listed as Santa Clara County, during the years of 2003–2015, had an average age of 20.4 years old (SD 2.8, Range 13–24), with 66.4% (n=152) of decedents age 20 to 24. Over three quarters of the youth decedents (75.1%, n=172) ages 10–24,who died in California and whose residence was listed as Santa Clara County during the years of 2003–2015 were male; over a third (38.9%, n=89) were White, Non-

[11] **Case Definition 2**: (1) Residence in Santa Clara County, (2) Death occurred in state of California, (3) Decedent 10 to 24 years of age, (4) Manner of death listed as suicide.

Hispanic; 27.1% (n=62) were Hispanic of any race; 27.1% (n=62) were Asian/Pacific Islander, Non-Hispanic; and 4.4% (n=10) were Black, Non-Hispanic.

Data on city of suicide-related injury were only available for the years 2005 through 2015 (Table 4). Please note, city of suicide-related injury is the city where the fatal suicide injury occurred. This may or may not have been the city where the individual died. The most common cities of residence the youth decedents ages 10–24 who died in California and were residents of Santa Clara County during the combined time period of 2003–2015 was San Jose (49.3%, n=113). The common cities of fatal suicide-related injury were San Jose (39.6%, n=76), Palo Alto (8.9%, n=17), and Sunnyvale (8.3%, n=16).

An Epi-Curve was constructed to present the count of suicide deaths that occurred in the state of California, by year, among youth ages 10–24, during 2003–2014 whose residence was listed as Santa Clara County (Figure 9). Deaths from 2015 were omitted because they were still preliminary at the time of these analyses. The suicide rate for each year was calculated for youth residents of Santa Clara County, and each year's crude suicide rate was compared to the crude suicide rate for 2014. Since 2003, the crude suicide rate for youth, age 10–24, that died in California and were residents of Santa Clara County has remained stable, with no significant differences over time.

Crude suicide rates for youth, age 10–24, who died in California and were residents of Santa Clara County were calculated for Santa Clara County cities with a minimum of 10 suicide deaths (Table 5) for the combined years of 2003–2015. Among youth suicide decedents ages 10–24 who died in California and were residents of Santa Clara County, the suicide rate for the city of San Jose was lower (4.6 per 100,000) than the youth suicide rates of Palo Alto (14.1 per 100,000) and Morgan Hill (12.7 per 100,000). From 2003-2015, the suicide rate for youth, ages 10–24, who died in California and were residents of the Santa Clara County was significantly higher in the city of Palo Alto than the suicide rates in San Jose, Sunnyvale, and Santa Clara. The Palo Alto youth suicide rate was not significantly different from the youth suicide rate of Morgan Hill.

Additional analyses were conducted to examine the rates of suicide among youth ages 10–24 who died in California and were residents of the Santa Clara County cities of Palo Alto, Morgan Hill, and San Jose. For the combined years of 2003–2014, the suicide rate among for youth ages 10–24 who died in California and were residents of the city of Palo Alto was significantly higher than the youth suicide rate for Santa Clara County, the state of California, and of the United States using data from CDC WONDER[12] (Table 6). In addition, the suicide rate for the combined years of 2003–2014, for youth ages 10–24 who died in California and were residents of the city of Morgan Hill was also found to be significantly higher than the youth suicide rate for Santa Clara County and the state of California using data from CDC WONDER.[13]

The suicide rate for the combined years of 2003–2015, for youth age 10–24 who died in California and were residents of the city of Palo Alto was compared to the suicide rate of other age groups (Table 7). The suicide rate for youth ages 10–24 who died in California and were residents of Palo Alto was not statistically significantly different than the suicide rate in the other age groups that died in California and were residents of Palo Alto. For the combined years of 2003–2015, the suicide rate among youth ages 10–24 who died in California and were residents of Palo Alto was statistically significantly higher than the suicide rates of 10–24 year-olds who died in California and were residents of San Jose. No significant age group differences were identified between Palo Alto and Morgan Hill.

The suicide rate for the combined years of 2003–2015 for youth ages 10–24 who died in California and were residents of Morgan Hill was not significantly different than the suicide rate in other age groups among Morgan Hill residents (Table 7). The suicide rate for the combined years of 2003–2015 among 10–24 and 25–39 year-old decedents who died in California and were residents of Morgan

[12] The most recent data available through CDC WONDER at the time of the investigation was 2014, therefore data from 2015 were omitted.
[13] The most recent data available through CDC WONDER at the time of the investigation was 2014, therefore data from 2015 were omitted.

Hill were statistically significantly higher than the suicide rate of 10–24 and 25–39 year-old decedents who died in California and were residents of San Jose during the same time period.

When looking at the overall crude suicide rate for combined years of 2003–2015 for decedents age 10 and older who died in California and were residents of Santa Clara County, the suicide rate for Palo Alto residents age 10 and older (12.8 per 100,000) was not statistically significantly different from the suicide rate among Morgan Hill residents age 10 and older (13.2 per 100,000) (Table 7). The crude suicide rate for the combined years of 2003–2015 for Palo Alto residents who died in California and were age 10 and older was significantly higher than the crude suicide rate for San Jose residents age 10 and older that died in California (9.0 per 100,000).

Cluster Analysis

Separate temporal and spatial cluster analyses were conducted. One significant temporal cluster of six suicide-related injuries were identified to have occurred from 1/3/2011 through 1/17/2011. This finding means that there was a significant clustering of suicides among youth that occurred in early January 2011. Available data on method of suicide, city of residence, city of suicide-related injury, age, and biological sex do not show a connection between these suicides so it is not known what, if any factors, may have contributed to the observed temporal cluster.

SaTScan analysis identified 11 spatial clusters throughout Santa Clara County (Figure 10). Reflecting SaTScan's methodology, the clusters are mapped as circles with different diameters and are numbered according to the rank of their likelihoods compared to chance. Cluster 1 is the most likely cluster, with a p-value of <0.0001. The cluster circles overlap, because SaTScan considered every possible grouping of decedents' ZIP codes when identifying potential clusters. Clusters 1, 4, 6 and 11 are all centered in the northwestern part of the county near the Santa Clara County city of Palo Alto. Clusters 2, 5, 8 and 10 are centered near the Santa Clara County city of Morgan Hill. These clusters

were consistent with the cities with elevated suicide rates and were also located near populated areas of Santa Clara County. The 11 significant clusters indicate that there was spatial clustering of suicides, by residential zip code, in several areas throughout Santa Clara County among youth residents of Santa Clara County that died in California from 2003 through 2015.

Case Definition 3

Using Case Definition 3,[14] for the combined years of 2003–2015, there was a total of 196 suicide deaths that *occurred* in Santa Clara County among youth, age 10–24, *whose residence* was in Santa Clara County (Table 8).

During the years 2003-2015, youth, ages 10–24, suicide decedents who died in Santa Clara County and whose residence was in Santa Clara County had an average age of 20.3 years old (SD 2.9, Range 13–24), with 62.8% (n=123) of decedents age 20–24. Three quarters of youth suicide decedents (75.0%, n=147) were male; 38.3% (n=75) were White, Non-Hispanic; 28.6% (n=56) were Hispanic, of any race; and 26.5% (n=52) were Asian/Pacific Islander.

Data on city of suicide-related injury were only available for the years 2005 through 2015 (Table 9). Please note, city of suicide-related injury is the city where the fatal suicide injury occurred. This may or may not have been the city where the individual died. During the combined time period of 2003-2015, the most common city of residence for youth, age 10–24, suicide decedents who died in Santa Clara County and were residents of Santa Clara County was San Jose (50.0%, n=98), and the most common city of suicide-related fatal injury was San Jose (45.8%, n=76)

[14] **Case Definition 3**: (1) County of death listed as Santa Clara County, (2) Residence in Santa Clara County, (3) Decedent 10 to 24 years of age, and (4) Manner of death listed as suicide.

Medical Examiner Data

A total of 210 medical examiner reports were abstracted for youth, age 10–24, suicide decedents who were residents of Santa Clara County and died in Santa Clara County during the years of 2003−2015 (Table 10). The most common method of suicide was hanging or suffocation (47.6%, n=100); followed by firearm (21.0%, n=44), poisoning (11.4%, n=24), train (10.5%, n=22), and fall (4.8%, n=10) (Table 10). The most common location of suicide was in a house, apartment, or garage (65.2%, n=137); followed by railroad tracks (10.5%, n=22); highway, freeway, street/road, parking lot, or bridge (7.1%, n=15); and an outdoor area (e.g., natural area, creek, open field, park, playground, athletic field) (7.1%, n=15). Of deaths that occurred in a house, apartment, or garage, the most common methods of suicide were hanging or suffocation (57.7%, n=79), firearm (21.2%, n=29), and poisoning (14.6%, n=20) (data not shown in a table). The majority of all youth suicides in Santa Clara County occurred in the decedent's own home (63.8%, n=134) (Table 10). Emergency medical services were reported in medical examiner reports as present in most of the suicide events (78.1%, n=164), however the timing of their arrival in relation to the suicide was unknown. Overall, 8.6% (n=18) of decedents had recently been released from some type of facility, such as a jail, hospital, or treatment facility. Finally, in 16.7% (n=35) of cases, alcohol was suspected to have been involved. Please note that alcohol suspected as being involved is based on death scene investigation (e.g., alcohol bottles at scene, witness report that decedent had been drinking) and not on toxicology.

Among youth suicide decedents who were residents of Santa Clara County, died in Santa Clara County, and used train as the method of suicide (10.5%, n=22), the most common observed behaviors were walking, standing, or laying on the tracks. Observation of climbing a fence to gain access to the tracks or jumping onto the tracks was not common (data not presented due to small sample size). For the majority of train suicide cases (77.3%, n=17), the conductor or train engineer took some type of action, such as applying the breaks or sounding a horn.

Almost all medical examiner reports (92.4%, n=194) abstracted from youth, age 10–24, suicide decedents were residents of Santa Clara County and died in Santa Clara County from 2003–2015, contained information about some circumstances that precipitated the suicide. Circumstances included in the investigative reports represent known information that was told to or identified by investigators and noted in the medical examiner records. These circumstances are outlined in Table 11. Across examined medical examiner reports, the average number of reported precipitating circumstances was 4.8 (SD 3.2, Range 0–15), and 81% of youth suicide decedents had two or more precipitating circumstances indicated.

Among youth suicide decedents that were residents of Santa Clara County and died in Santa Clara County during 2003–2015, and had recorded precipitating circumstance data (n=194), current mental health problems were reported in 47.4% of the medical examiner reports (n=92) (Table 11). Among decedents with current mental health problems, the most common diagnosis was depression (72.8%, n=67); other common diagnoses included non-specified anxiety disorders (13.0%, n=12), bipolar disorder (13.0%, n=12), and self-injury (10.9%, n=10) (data not shown in a table). Among decedents with mental health problems, 35.8% (n=33) had more than one mental health diagnosis (data not shown in a table). Among decedents with recorded precipitating circumstance data, close to a third (32.5%, n=63) reportedly had a depressed mood at the time of their death, 30.4% (n=59) were receiving treatment for mental health problems at the time of their death, and 42.8% (n=83) of decedents had ever received treatment for mental health problems (Table 11).

With regard to suicide-related behaviors, among youth suicide decedents that were residents of Santa Clara County and died in Santa Clara County during 2003–2015, and had recorded precipitating circumstance data, 42.3% (n=82) left a suicide note, 37.1% (n=72) had a history of suicidal thoughts, 29.9% (n=58) had a history of suicide attempts, and 29.4% (n=57) disclosed their intent for suicide to someone (Table 11). Among decedents that had disclosed their intent for suicide, they most commonly

disclosed to family (40.4%, n=23), followed by former/current intimate partner (28.1%, n=16), friend (19.3%, n=11), or another individual (15.8%, n=9) (data not shown in a table). Among decedents that had disclosed their intent for suicide, none were indicated to have disclosed to a teacher, and 17.5% had disclosed to more than one individual (data not shown in a table). Across all youth suicide decedents, warning signs for suicide described in reports included increased use of drugs/alcohol, agitation and reckless behavior, withdrawing from friends and family (including withdrawing from previously enjoyed activities, and sudden discontinuation of activities), sleeping too much/too little, extreme mood swings, showing rage, putting affairs in order (e.g., writing a will), and rehearsing suicide behavior.

Among youth suicide decedents that were residents of Santa Clara County and died in Santa Clara County during 2003–2015, and had recorded precipitating circumstances, over half (52.6%, n=102) of decedents had a recent crisis (either in the past or an impending crisis) within 2 weeks of the individual's death (Table 11). Recent crises included intimate partner problems (e.g., breaking up with an intimate partner), an argument (e.g., with family or intimate partner), recent release from a medical facility (e.g., from a 5150 hold or other treatment facility within 2-weeks of death), recent legal problems (e.g., DUI or court date, recent arrest), recent suicide attempt or suicidal ideation, recent drug/alcohol use, job performance problems, onset of psychotic symptoms, victim/perpetrator of violence (e.g., sexual assault, intimate partner violence), and school problems (e.g., failing classes, suspension, conduct problems at school).

Among youth suicide decedents that were residents of Santa Clara County and died in Santa Clara County during 2003–2015, and had recorded precipitating circumstances, other circumstances included intimate partner problems (e.g., breaking up with or divorce from an intimate partner; 27.3%, n=53), arguments (21.1%, n=41), school problems (20.6%, n=40), and family stressors/relationship problems (e.g., fight or discord with family members; 18.6%, n=36) (Table 11). Of those that had an

argument as a reported precipitating circumstance, 80.5% (n=33) of those arguments occurred within 24 hours of the suicide (data not shown in a table).

Precipitating circumstances by age category

Adolescent suicide decedents, age 10–19, were compared to young adult suicide decedents, age 20–24, who were residents of Santa Clara County and died in Santa Clara County during the years of 2003–2015. Ages were obtained from preliminary death certificates or medical examiner investigative reports included in the medical examiner reports. Adolescents were more likely than young adults to have been currently receiving treatment for mental illness at the time of death, to have a history of suicidal thoughts, to ever have been treated for a mental health problem, to have disclosed their intention for suicide, to have had a recent crisis, and to have been experiencing family stressors and school problems (Table 12). Young adults were statistically significantly more likely to have had reported alcohol dependence than adolescents (Table 12).

Precipitating circumstances by biological sex

Precipitating circumstances for male and female youth, age 10–24, suicide decedents that were residents of Santa Clara County and died in Santa Clara County during 2003–2015 were compared. Male suicide decedents were statistically significantly less likely to have had a current mental health problem at the time of death, to have been currently receiving treatment for mental illness, to have a history of treatment for mental illness, to have a history of suicide attempt, and to have been experiencing family stressors than female youth suicide decedents (Table 13).

Comparison to other counties

Data from NVDRS were used to compare precipitating circumstances of youth suicide decedents in Santa Clara County to youth suicide decedents from pooled, high-income counties, selected from states participating in NVDRS from 2003–2013. Among youth suicide decedents that were residents of Santa Clara County and died in Santa Clara County during 2003–2013, and had known precipitating circumstances, the precipitating circumstances identified in Santa Clara County were similar to precipitating circumstances for youth decedents in the pooled comparison counties from the same time frame (Table 14). The differences were limited to youth suicide decedents in Santa Clara County were statistically significantly less likely to have a history of treatment for mental illness and significantly more likely to have had a recent crisis than decedents in the comparison counties

When stratified by age category, the precipitating circumstances identified among youth suicide decedents that were residents of Santa Clara County and that died in Santa Clara County from 2003–2013, were similar to precipitating circumstances for youth decedents in the pooled comparison counties during the time period. Differences were limited to adolescents, age 10 to 19, in Santa Clara County who were statistically significantly more likely than decedents in pooled comparison counties to have had a history of suicide attempt, and to have a recent crisis (Table 15); and young adults, age 20 to 24, were statistically significantly less likely to have ever been treated for a mental health problem, and were statistically significantly more likely to have had a school related problem and to have had a recent crisis (Table 16).

Finally, a similar pattern emerged when stratified by biological sex. There were limited differences in precipitating circumstances by biological sex for youth suicide decedents, age 10–24, who were residents of Santa Clara County and died in Santa Clara County when compared to youth suicide decedents in pooled comparison counties for the time period of 2003–2013. Male and female youth

suicide decedents in Santa Clara County were statistically significantly more likely to have had a recent crisis prior to death than male and female youth in pooled comparison counties (Table 17, 18).

Precipitating circumstances by city of residence

To limit the possibility of identification of an individual, stratification of precipitating circumstances by city of residence was not conducted. However, precipitating circumstances by city of residence for youth suicide decedents who were residents of Santa Clara County and died in Santa Clara County from 2003–2015 are presented in aggregate and without frequencies (Table 19). Santa Clara County cities with more than 10 suicide decedents, as indicated in Table 5, were examined. If twenty-five percent or more of youth suicide decedents with reported precipitating circumstances in a given city had the reported precipitating circumstance listed in the first column of Table 19, it was indicated in the table with an "x." Overall, there was a high level of consistency across city groups in Santa Clara County. Common reported circumstances were the following: current mental health problems and depressed mood, a current and former treatment for mental health problems, recent crisis, a history of suicide attempt and thoughts, leaving a suicide note, and disclosure of suicidal thoughts.

Precipitating circumstances by method of suicide

To limit the possibility of identification of an individual, stratification of precipitating circumstances by method of suicide was not conducted. However, precipitating circumstances by method of suicide among youth suicide decedents who were residents of Santa Clara County and died in Santa Clara County from 2003–2015 are presented in aggregate and without frequencies (Table 20). To be included in the table, twenty-five percent or more of youth suicide decedents that used each method had to have the reported precipitating circumstance listed in the first column of Table 20. Overall, there was a high level of consistency across methods. Common reported circumstances were current mental

health problems and depressed mood, a current and former treatment for mental health problems, recent crisis, a history of suicide attempt and thoughts, leaving a suicide note, and disclosure of suicidal thoughts. Of note, less than twenty-five percent of decedents that used a firearm had a previous suicide attempt or were receiving mental health treatment at the time of death.

Precipitating circumstances in Palo Alto

Additional qualitative examination of medical examiner narratives for youth suicide decedents who were residents of Palo Alto and died in Santa Clara County from 2003−2015 was conducted. To limit the possibility of identification of an individual, qualitative results are discussed in aggregate and without counts or frequencies to limit the possibility of identification of an individual.

Among youth suicide decedents with known precipitating circumstances and who were residents of Palo Alto and died in Santa Clara County from 2003−2015, twenty-five percent or more had the following reported precipitating circumstances: current mental health problems, current depressed mood, current treatment for mental illness, a history of treatment for mental problems, a history of suicide attempt, had left a suicide note, had disclosed suicide intention, had a recent crisis, and school problems (Table 19).

As described previously, information in medical examiner reports were used to determine whether youth suicide decedents that were residents of Palo Alto and died in Santa Clara County from 2003−2015 knew one another. Two youth suicide decedents were identified as having mentioned hearing about, or being aware of, other youth suicides in the community based on medical examiner report investigations. Based on information contained in the reports, however, there was no indication that other suicide deaths played a contributory role. Additionally, these two decedents had other known precipitating circumstances indicated in their medical examiner reports, including past suicide attempt/suicidal ideation, depressed mood, and social isolation.

Qualitative review of medical examiner report narratives indicated that several youth suicide decedents that were residents of Palo Alto and died in Santa Clara County from 2003–2015 were noted as having severe mental health problems, including schizophrenia and psychosis (including auditory hallucinations), and chronic and severe depression. Furthermore, among those who had made previous suicide attempts, several youth suicide decedents who were residents of Palo Alto and died in Santa Clara County from 2003–2015 had attempted suicide multiple times and/or had been admitted multiple times to the hospital for suicidal behaviors. Finally, several youth suicide decedents who were residents of Palo Alto and died in Santa Clara County from 2003–2015 were living in residential mental health facilities or half-way houses at the time of death.

Twenty-five percent or more of youth suicide decedents who were residents of Palo Alto, died in Santa Clara County from 2003–2015, and had known precipitating circumstances, had a recent crisis indicated as precipitating their death (Table 19). Qualitative review of narratives indicated that recent crises included breakups or other relationship problems with an intimate partner, recent release from a hospital or rehabilitation facility within two-weeks of death, and school related behavioral issues.

School problems were identified in twenty-five percent or more of youth suicide decedents with known precipitating circumstances and who were residents of Palo Alto and died in Santa Clara County from 2003–2015 (Table 19). These problems were largely indicated in medical examiner reports as possibly related to deteriorating mental health or other personal problems (e.g., intimate partner problems like a break-up). This included slipping grades, multiple tardy slips at school, and taking a leave of absence or being suspended from school. For several decedents, these school related problems appeared to co-occur with other mental health issues, previous suicidal behavior, depression, or drug/alcohol use.

Several youth suicide decedents who were residents of Palo Alto and died in Santa Clara County during 2003–2015 used train as the method of suicide. Among Palo Alto youth that used train as the

method of suicide and had known precipitating circumstances, these known precipitating circumstances for suicide included the following: current mental health problem, current depressed mood, current mental health treatment, history of mental health treatment, history of suicide attempt, history of suicidal ideation, school related problems, recent crisis, disclosure of suicidal ideation, and had left a suicide note.

Additional qualitative review of medical examiner report narratives indicated that among youth suicide decedents who were residents of Palo Alto, died in Santa Clara County, and were also living in residential mental health treatment facilities at the time of their death, train was a commonly used method of suicide. Several of the residential mental health treatment facilities were in close proximity (within 1–2 miles) of the train line where the suicide occurred. Reported precipitating factors for these youth included severe mental health problems, including schizophrenia and auditory hallucinations, and social isolation (e.g., did not feel they had friends, did not feel they had anyone to listen to them).

Precipitating circumstances in Morgan Hill

Additional qualitative examination was conducted of medical examiner narratives for youth suicide decedents who were residents of Morgan Hill and died in Santa Clara County during 2003−2015. To limit the possibility of identification of an individual, qualitative results are discussed in aggregate and without counts or frequencies to limit the possibility of identification of an individual. Qualitative review of information contained in medical examiner report narratives did not indicate that suicide decedents who were residents of Morgan Hill and died in Santa Clara County during 2003−2015 knew one another, and there was no indication that other suicide deaths in other parts of Santa Clara County played a contributory role.

Among youth suicide decedents with known precipitating circumstances, who were residents of Morgan Hill and died in Santa Clara County during 2003−2015, twenty-five percent or more had the

following reported precipitating circumstances: current mental health problems, current depressed mood, current treatment for mental illness, a history of treatment for mental problems, a history of suicide attempt, had left a suicide note, had disclosed suicide intention, had a recent crisis, intimate partner problems, arguments, school problems, and family relationship problems (Table 19). Of youth suicide decedents who were residents of Morgan Hill, died in Santa Clara County during 2003−2015, and had a history of mental health problems, qualitative review of medical examiner narratives indicated that these mental health problems tended to be related to depression and a history of suicide/attempt, and not related to forms of mental illness like schizophrenia.

Twenty-five percent or more of youth suicide decedents who were residents of Morgan Hill and died in Santa Clara County during 2003−2015, had a recent crisis as a known precipitating circumstance (Table 19). Qualitative review of narratives indicated that recent crises primarily included breakups or other relationship problems with an intimate partner. Other qualitative characteristics of youth suicide decedents from Morgan Hill included a portion of youth having previous interaction with the criminal justice system or social services (e.g., child protective services) and/or having school related issues, such as doing poorly at school or dropping out of school.

Emergency Department and Patient Discharge Data

Emergency department data

There was a total of 8,392 emergency department (ED) visits for suicidal ideation and/or suicide attempt/self-injury among youth aged 10–24 years, during 2005–2014, either at EDs within Santa Clara County (by either residents or nonresidents of Santa Clara County) or at EDs outside Santa Clara County by Santa Clara County residents. Of these, 7,473 (89%) were visits by Santa Clara County residents; analyses were restricted to this sample. Nearly two-thirds (65%) of visits were by females (Table 21). Half of visits were by patients aged 15–19 years, and 43% were by White, non-Hispanic patients. In

one-third of visits, the patient was of Hispanic ethnicity (any race). More than half (58%) of visits resulted in a transfer to a psychiatric hospital or the psychiatric unit of a hospital, and a quarter resulted in discharge to home.

Epi-Curves were constructed to present the count of ED visits related to suicide attempt/self-injury or suicidal ideation that occurred in Santa Clara County among youth ages 10–24 during 2005–2014. Counts of visits for suicide attempt/self-injury (regardless of presence of suicidal ideation) are presented, by year and quarter, in Figure 11, and visits for suicidal ideation (regardless of presence of suicide attempt/self-injury) in Figure 12. Visits for suicide attempt/self-injury have been increasing since 2007 and visits for suicidal ideation have been increasing consistently since 2005. The total number of visits per year, broken down by visit type, is shown in Figure 13. The total number of visits increased steadily during 2005–2014, mainly due to increases in visits for suicidal ideation with no suicide attempt/self-injury. To note, any changes over time could result from changes in actual number of visits, from changes in the use of suicide attempt/self-injury and suicidal ideation ICD-9 codes, or from a combination.

Logistic regression was used to assess demographics that were associated with being transferred from the ED to psychiatric care (Table 22). It should be noted that no data were available about the severity of any injury or diagnosis, so it was not possible to control for such characteristics of the visits. Visits were more likely to result in transfer to psychiatric care when suicidal ideation was present compared to when it was not present, regardless of suicide attempt/self-injury (OR: 1.21, 95% CI 1.10–1.31). Visits for suicide attempt/self-injury, regardless of presence of suicidal ideation, were less likely to result in transfer to psychiatric care, compared to visits with no suicide attempt/self-injury (OR: 0.85, 95% CI: 0.77-0.93). Visits by the youngest age group (10–14 years) were statistically significantly less likely to result in transfer to psychiatric care, when compared to 20–24 year-olds (OR: 0.84, 95% CI: 0.73–0.97); no difference in odds of transfer was found comparing 15–19 year-olds with 20–24 year-

olds. Relative to visits by White, non-Hispanic patients, visits by patients of "other, non-Hispanic" race/ethnicity (this included Native Hawaiian/Pacific Islander, Native American/Alaskan Native, multiple races, and race indicated as other), were statistically significantly less likely to be transferred to psychiatric care (OR: 0.51, 95% CI: 0.40–0.63). Also compared to visits by White, non-Hispanic patients, visits by Hispanic patients (any race) were more likely to result in transfer to psychiatric care (OR: 1.16, 95% CI: 1.04–1.30). No difference in odds of transfer was found comparing males with females.

Compared with the rest of Santa Clara County, ED visits by Palo Alto/Stanford youth residents for suicide attempt/self-injury were similar in terms of sex and race/ethnicity (Table 23). More of the visits for suicidal ideation in Palo Alto/Stanford were by males, compared to visits by youth residents in the rest of the county (43% vs. 35%). For combined suicide attempt/self-injury and suicidal ideation ED visits among youth, a higher proportion of patients from Palo Alto/Stanford patients were in the 15–19 year age group than the rest of the county (Palo Alto/Stanford, 55% vs. 48% for the rest of the county), and a lower proportion in the 20–24 year age group (Palo/Alto, 27% vs. 32% for the rest of the county). This reflects age groups differences among the suicide attempt/self-injury visits more so than the visits for suicidal ideation. Fewer visits by Palo Alto/Stanford youth residents were by Hispanic (any race) patients (25% of total visits vs. 33% for the rest of the county), and more visits by Palo Alto/Stanford youth residents were by Black, non-Hispanic patients (9% of total visits vs. 5% for the rest of the county). Also, compared with the rest of Santa Clara County, a higher proportion of ED visits related to suicidal behavior by Palo Alto/Stanford residents included suicidal ideation (71% vs. 60%) and a lower proportion included suicide attempt/self-injury (34% vs. 50%). Visit type was not mutually exclusive (i.e., a visit could have included both suicide attempt/self-injury and suicidal ideation). To note, the demographic differences between ED visits by Palo Alto/Stanford residents and residents of other cities

could be a reflection of overall population demographic differences of Palo Alto/Stanford, compared to the rest of Santa Clara County, rather than differences in those seeking/requiring care.

When examining ED visits by youth ages 10–24 for Morgan Hill youth residents relative to youth residents in other parts of Santa Clara County, Morgan Hill residents 15–19 years old had higher proportions of overall ED visits when compared to visits by the rest of the county (60% vs. 49%); and Morgan Hill residents 15–19 years old also had higher proportions of visits for suicidal ideation compared to visits by the rest of the county (64% vs. 47%) (Table 24). While no sex differences were seen comparing Morgan Hill visits with the rest of the Santa Clara County, fewer of the Morgan Hill visits were by Hispanic patients (23% vs. 33%), and more of the Morgan Hill visits were by White, non-Hispanic patients (79% vs. 41%). The proportion of Morgan Hill visits by White, non-Hispanic patients was much higher than the rest of the County (70% vs. 41% for overall visits). Differences may reflect overall population demographic differences.

The crude rates of ED visits for suicide attempt/self-injury per 100,000 population for all California counties, and for the state of California, for the years 2006–2014, are shown in Figure 14. These rates were pulled from California Department of Public Health EpiCenter Data. Counties with visit count <20 are not included in the figure, as their calculated rates could be unreliable. Santa Clara County is highlighted; the rate for Santa Clara County youth residents (126.1/100,000) is lower than that of the state of California (157.6/100,000) and is among the lowest of the county rates. The crude ED visit rates for suicide attempt/self-injury among youth for Palo Alto/Stanford, Morgan Hill, San Jose, and Santa Clara County are presented in Figure 15. ED rates were calculated for these cities because Palo Alto/Stanford and Morgan Hill had the highest suicide death rates in Santa Clara County, and San Jose had the lowest. The ED visit rates for both Palo Alto/Stanford (170.1/100,000) and for Morgan Hill (235.4/100,000) are higher than the rates for both Santa Clara County and the state of California (157.6/100,000). The ED visit rate for San Jose is similar to that for Santa Clara County.

Patient discharge data

There was a total of 6,703 hospitalizations for suicidal ideation and/or suicide attempt/self-injury among Santa Clara County residents aged 10–24 years during 2003–2014 at facilities either within or outside of Santa Clara County. Of these, 2,941 (44%) were hospitalizations to facilities within Santa Clara County, and 3,762 (56%) were hospitalizations to facilities outside of Santa Clara County. Nearly two-thirds (64%) of hospitalizations were by females, with females representing 61% of hospitalizations for suicidal ideation with no suicide attempt/self-injury and 75% of hospitalizations with both suicidal ideation and suicide attempt/self-injury (Table 25). Nearly half (49%) of hospitalizations were by patients aged 15–19 years, and 44% were by White, non-Hispanic patients. Over one-quarter (26%) of hospitalizations were by Hispanic patients. Just over three-quarters of hospitalizations (77%) resulted in discharge to home.

Epi-Curves were constructed to present the count of hospitalizations related to suicide attempt/self-injury or suicidal ideation that occurred in Santa Clara County among youth ages 10–24 during 2004–2014, by year and quarter. Counts of hospitalizations for suicide attempt/self-injury (regardless of presence of suicidal ideation) are presented in Figure 16, and hospitalizations for suicidal ideation (regardless of presence of suicide attempt/self-injury) in Figure 17. Hospitalizations for suicide attempt/self-injury increased from 2013 to 2014, and hospitalizations for suicidal ideation have been increasing since 2004. The total number of hospitalizations per year, broken down by admission type, is shown in Figure 18. The total number of hospitalizations increased during 2004–2014, mainly due to increases in visits for suicidal ideation with no suicide attempt/self-injury. To note, any changes over time could result from changes in actual hospitalization number, from changes in the use of suicide attempt/self-injury and suicidal ideation ICD-9 codes, or from a combination.

Logistic regression was used to assess demographics that were associated with being hospitalized in a facility outside of Santa Clara County (Table 26). Compared to 20–24 year-olds, both 10–14 year-

olds (OR: 9.54, 95% CI: 8.01–11.37) and 15–19 year-olds (OR: 3.53, 95% CI: 3.16–3.95) were statistically significantly more likely to have been hospitalized in out-of-county facilities. Hospitalizations for Hispanic patients were also more likely than hospitalizations by White, non-Hispanic patients to have been outside of Santa Clara County (OR: 1.24, 95% CI: 1.10–1.40). Hospitalizations where suicide attempt/self-injury was present (regardless of suicidal ideation presence) were much less likely to be outside of Santa Clara County than hospitalizations without suicide attempt/self-injury (OR: 0.09, 95% CI: 0.08–0.10), and hospitalizations where suicidal ideation (regardless of presence of attempt/self-injury) was present were much more likely to be outside of Santa Clara County than hospitalizations without suicidal ideation (OR: 15.73, 95% CI: 13.57–18.24).

The crude rate of hospitalization for suicide attempt/self-injury per 100,000 population for all California counties, and for the state of California, for youth ages 10–24 during the years 2006–2014, are shown in Figure 19, with the horizontal line in Figure 19 representing the crude rate of hospitalization for the state of California. These rates were obtained from the California Department of Public Health EpiCenter Data. Counties with less than 20 hospitalizations are not included in the figure, as their calculated rates could be unreliable. Santa Clara County is highlighted; the rate of hospitalization for Santa Clara County youth residents (53.4/100,000) is lower than that of the state of California (57.4/100,000). The crude hospitalization rate for youth for suicide attempt/self-injury for Palo Alto/Stanford, Morgan Hill, San Jose, and Santa Clara County, using patient discharge data, are presented in Figure 15. Hospitalization rates were calculated for these cities because Palo Alto/Stanford and Morgan Hill had the highest suicide rates in Santa Clara County, and San Jose had those lowest. The youth hospitalization rates for suicide attempt/self-injury for both Palo Alto/Stanford (63.3/100,000) and Morgan Hill (191.4/100,000) are higher than the hospitalization rates for both Santa Clara County and the state of California. The youth hospitalization rate for suicide attempt/self-injury for San Jose is similar that that for Santa Clara County.

Developmental Assets Survey

A total of 2683 high school students from Palo Alto Unified School District took the Developmental Assets survey in 2010. Students were distributed across four grade levels: ninth (29.6%, n=792), tenth (24.6%, n=658), eleventh (26.6%, n=712), and twelfth (19.3%, n=518). Roughly half of respondents were female (51.0%, n=1355), and under half were male (49.0%, n=1303). Finally, 8.2% (n=219) of students that participated in the survey indicated that they had made at least one suicide attempt in their lifetime. No information was included on race/ethnicity of the students participating in the survey. Risk and protective factors across the social ecological model were examined.

Self-esteem and perception of self

Nine items were used to assess the relationship between self-esteem and perceptions of self and ever making a suicide attempt. The results of the logistic regression models are presented in Table 27.

Statistically significant protective factors for ever making a suicide attempt were:

- Agree that they are glad they are themselves
- Agree that they like themselves
- Agree that they are good at finding a way to make things better
- Agree that when they are an adult they will have a good life

Statistically significant risk factors for ever making a suicide attempt were:

- Agree that they feel like life has no purpose
- Agree that they feel like they do not have much to be proud of
- Agree that at times, they think they are no good at all
- Agree that they have little control over things in their life
- Agree that they like to do exciting things, even if they are dangerous

Delinquent behavior and sexual activity

Four items were used to assess the relationship between delinquent behaviors and sexual activity and ever making a suicide attempt. The results of the logistic regression models are presented in Table 28.

Statistically significant risk factors for ever making a suicide attempt were:

- Stolen something from a store in the past 12-months
- Gotten into trouble with the police in the past 12-months
- Damaged property for fun in the past 12-months
- Ever had sexual intercourse in lifetime

Alcohol/tobacco/marijuana use, depressive symptoms, and disordered eating

Five items were used to assess the relationship between substance use, depressive symptoms, and disordered eating and ever making a suicide attempt. The results of the logistic regression models are presented in Table 29.

Statistically significant risk factors for ever making a suicide attempt were:

- Ever cut down on how much eaten and lost so much weight that others became worried in lifetime
- Ever felt sad or depressed during the last month
- Ever smoked cigarettes in lifetime
- Ever having had more than just a few sips of alcohol in lifetime
- Ever used marijuana in lifetime

Violence perpetration/victimization

Three items were used to assess the relationship between violence perpetration/victimization and ever making a suicide attempt. The results of the logistic regression models are presented in Table 30.

Statistically significant risk factors for ever making a suicide attempt were:

- Ever been a victim of physical violence where someone caused physical pain or injury in the past 2-years
- Hit or beat up someone in past 12-months
- Ever threatened to physically hurt someone in lifetime

Relationship with family and family violence

Thirteen items were used to assess the relationship between parent/family related variables and ever making a suicide attempt. The results of the logistic regression models are presented in Table 31.

Statistically significant protective factors for ever making a suicide attempt were:

- Parents give help and support when needed

- Getting along with parents
- Parents saying they love the student
- If had an important concern about drugs, alcohol, would talk to parents
- Having a lot of good conversations with parents
- Parents that ask about what student is doing in school
- Parents go to meetings or events at school
- Feeling useful/important in family
- Having parents that push student to be the best they can be

Statistically significant risk factors for ever making a suicide attempt were:

- Being afraid of being hurt by someone at home
- Ever being physically harmed (that is where someone caused you to have a scar, black and blue marks, welts, bleeding, or a broken bone) by someone in the family or living with student

Relationship with neighborhood and neighborhood safety

Eight items were used to assess the relationship between neighborhood related variables and ever making a suicide attempt. The results of the logistic regression models are presented in Table 32.

Statistically significant protective factors for ever making a suicide attempt were:

- Perceiving that adults in community make them feel important
- Perceiving that adults in community listen to what they have to say
- Perceiving that they have chances to help make town better place to live
- Perceiving that they matter to people in the town
- Perceiving that a neighbor would notify parents if did something wrong.

Statistically significant risk factors for ever making a suicide attempt were:

- Perceiving that adults in town don't care about people their age
- Fear of walking in neighborhood

Relationship with school and school-related variables

Five items were used to assess the relationship between school-related variables and ever making a suicide attempt. The results of the logistic regression models are presented in Table 33.

Statistically significant protective factors for ever making a suicide attempt were:

- Perceiving that teachers at their school push them to be the best they can be
- Perceiving that teachers care about them

- Receiving encouragement at school
- Perceiving that other students at school care about them

Statistically significant risk factors for ever making a suicide attempt were:

- Ever feel afraid of getting hurt by someone at school

California Healthy Kids Survey

Prevalence of past year suicidal ideation across Santa Clara County school districts

Weighted prevalence of past year suicidal ideation among public high school students, for school districts in Santa Clara County, were calculated for the following years of California Health Kids Survey (CHKS) administration: 2005–2006, 2007–2008, 2009–2010, 2011–2012, and 2013–2014. Data were examined in aggregate from districts that assessed past year suicidal ideation among public high school students. Different Santa Clara County school districts assessed past year suicidal ideation among public high school students each CHKS administration year, and these are outlined in Table 34. The weighted prevalence of past year suicidal ideation among public high school students ranged from 15.3% in the 2007–2008 school year (seven school districts assessed) to 18.6% in the 2011–2012 school year (four school districts assessed) (Table 35). Prevalence of past year suicidal ideation based on data from the Youth Risk Behavior Survey is also indicated in Table 35 to allow for contextualization of prevalence in Santa Clara County to national estimates.[20] Interpretation of the differences in weighted prevalence of past year suicidal ideation across school districts should be made with caution due to methodological considerations of the CHKS. Please see the section describing the CHKS dataset for additional information.

Prevalence of past year suicidal ideation in six Santa Clara County school districts

Weighted prevalence of past year suicidal ideation among public high school students was calculated for six Santa Clara County school districts using data from the 2013–2014 CHKS

administration. These Santa Clara County school districts included: East Side Union High School, Gilroy Unified, Mountain View-Los Altos Union, Morgan Hill Unified, Palo Alto Unified, and Santa Clara Unified. Weighted prevalence of past year suicidal ideation among public high school students using data from 2013–2014 CHKS administration ranged from 12% (Palo Alto Unified School District) to 20% (Morgan Hill Unified and Gilroy Unified School Districts) (Figure 20). The prevalence of past year suicidal ideation during 2013–2015, among 9th and 11th grade students in the state of California was estimated at 19.3% and 18.7%, respectively.[35] The prevalence of past year suicidal ideation among high school students completing the national Youth Risk Behavior Survey in 2013 was 17%.[20] Interpretation of the different prevalence of past year suicidal ideation among public high school students across school districts (or when compared to the state of California or national data from the Youth Risk Behavior Survey) should be made with caution due to methodological considerations of the CHKS survey. Please see the data source section describing the CHKS dataset for additional information.

Risk and protective factors for past year suicidal ideation across Santa Clara County school districts

Risk and protective factors for past year suicidal ideation among public high school students were assessed using the 2013–2014 CHKS administration. Data were examined in aggregate across the following six school districts: East Side Union High School, Gilroy Unified, Mountain View-Los Altos Union, Morgan Hill Unified, Palo Alto Unified, and Santa Clara Unified. Data from the 2013–2014 CHKS administration were used to provide an understanding of *current* risk and protective factors for past year suicidal ideation that can be the focus of targeted programs.

Results from logistic regression analyses conducted using data pooled from six school districts in Santa Clara County are presented in Table 36, and the following outlines significant risk and protective factors:

Statistically significant protective factors for past year suicidal ideation were:

- Perceiving that a teacher-adult at school cares about them

- High level of school connectedness
- High level of school expectations
- High level of academic motivation
- High level of school providing meaningful opportunities

Statistically significant risk factors for past year suicidal ideation were:

- Drank alcohol, ever in lifetime
- Use illicit drugs (marijuana, ecstasy, cocaine), ever in lifetime
- Used pain medication, ever in lifetime
- Smoked a cigarette, ever in lifetime
- Female gender
- Self-identify as lesbian, gay, or bisexual
- Feeling sad or hopeless almost every day for two weeks or more, past 12-months
- Experienced violent victimization at school, past 12-months
- Experienced psychological bullying at school, past 12-months
- Experienced cyberbullying on internet, past 12-months
- Ever skipped school, past 12-months

All significant risk and protective factors were included in a multivariable logistic model and odds ratios and confidence intervals are presented in Table 37.

Statistically significant protective factors for past year suicidal ideation, when controlling for all other significant risk and protective factors, were:

- Perceiving that a teacher-adult at school cares about them
- High level of school connectedness

Statistically significant risk factors for past year suicidal ideation, when controlling for all other significant risk and protective factors, were:

- Used pain medication, ever in lifetime
- Female gender
- Self-identify as lesbian, gay, or bisexual
- Feeling sad or hopeless almost every day for two weeks or more, past 12-months
- Experienced violent victimization at school, past 12-months
- Experienced psychological bullying at school, past 12-months

Risk and protective factors for past year suicidal ideation in six Santa Clara County school districts

Risk and protective factors for past year suicidal ideation among public high school students were assessed in the following six Santa Clara County school districts that asked about past year suicidal ideation in 2013–2014 CHKS administration: East Side Union High School, Gilroy Unified, Mountain View-Los Altos Union, Morgan Hill Unified, Palo Alto Unified, and Santa Clara Unified.

Results from logistic regression analyses are presented in Table 38, and the following outlines significant risk and protective factors that were identified in all six Santa Clara County school districts that asked high school students about past year suicidal ideation in 2013–2014 CHKS administration.

Statistically significant protective factors, across all six school districts, for past year suicidal ideation were:

- Perceiving that a teacher-adult at school cares about them
- High level of school connectedness
- High school expectations

Statistically significant risk factors, across all six school districts, for past year suicidal ideation were:

- Drank alcohol, ever in lifetime
- Use illicit drugs (marijuana, ecstasy, cocaine), ever in lifetime
- Used pain medication, ever in lifetime
- Smoked a cigarette, ever in lifetime
- Female gender
- Self-identify as lesbian, gay, or bisexual
- Feeling sad or hopeless almost every day for two weeks or more, past 12-months
- Experienced violent victimization at school, past 12-months
- Experienced psychological bullying at school, past 12-months
- Experienced cyberbullying on internet, past 12-months
- Ever skipping school, past 12-months

Weighted prevalence of past year suicidal ideation in Palo Alto Unified school district

Additional analyses were conducted using data from the Palo Alto Unified School District (PAUSD) in Santa Clara County. The weighted prevalence of past year suicidal ideation among PAUSD public high school students has ranged from 17.9% in 2009–2010 to 12.5% in 2013–2014 (Table 39).

Interpretation of the different prevalence of past year suicidal ideation over time should be made with caution due to methodological considerations of the CHKS survey. Please see the data source section describing the CHKS dataset for additional information.

Risk and protective factors for past year suicidal ideation in Palo Alto Unified school district

Risk and protective factors for past year suicidal ideation among high school students were assessed for the Santa Clara County school district of PAUSD for the following years of CHKS administration (Table 40): 2009–2010, 2011–2012, 2013–2014. This was done to determine whether the risk and protective factors for suicidal ideation have changed, over time, at PAUSD.

The following outlines the significant risk and protective factors for past year suicidal ideation among PAUSD high school students that were common across all examined surveys.

Statistically significant protective factors for past year suicidal ideation among PAUSD high school students were:

- Perceiving that a teacher-adult at school cares about them

Statistically significant risk factors for past year suicidal ideation among PAUSD high school students were:

- Drank alcohol, ever in lifetime
- Use illicit drugs (marijuana, ecstasy, cocaine), ever in lifetime
- Used pain medication, ever in lifetime
- Smoked a cigarette, ever in lifetime
- Female gender
- Feeling sad or hopeless almost every day for two weeks or more, past 12-months
- Experienced violent victimization at school, past 12-months
- Experienced psychological bullying at school, past 12-months
- Experienced cyberbullying on internet, past 12-months
- Ever skipped school, past 12-months

Weighted prevalence of past year suicidal ideation in Morgan Hill Unified school district

Additional analyses were conducted using data from the Morgan Hill Unified School District (MHUSD) in Santa Clara County. The weighted prevalence of past year suicidal ideation among

MHUSD public high school students has ranged from 15.9% in 2007–2008, to 19.7% in 2013–2014 (Table 39). Interpretation of the different prevalence of past year suicidal ideation over time should be made with caution due to methodological considerations of the CHKS survey. Please see the section describing the CHKS dataset for additional information.

Risk and protective factors for past year suicidal ideation in Morgan Hill Unified School District

Risk and protective factors for past year suicidal ideation among high school students were assessed for the Santa Clara County school district of MHUSD for the following years of CHKS administration (Table 41): 2007–2008, 2013–2014. This was done to determine if the risk and protective factors for suicide have changed, over time, at MHUSD. The following outlines the significant risk and protective factors for past year suicidal ideation among MHUSD high school students that were common across all examined surveys.

Statistically significant protective factors for past year suicidal ideation among MHUSD high school students were:

- Perceiving that a teacher-adult at school cares about them

Statistically significant risk factors for past year suicidal ideation among MHUSD high school students were:

- Drank alcohol, ever in lifetime
- Use illicit drugs (marijuana, ecstasy, cocaine), ever in lifetime
- Used pain medication, ever in lifetime
- Smoked a cigarette, ever in lifetime
- Female gender
- Feeling sad or hopeless almost every day for two weeks or more, past 12-months
- Experienced violent victimization at school, past 12-months
- Experienced psychological bullying at school, past 12-months
- Ever skipped school, past 12-months

Prevalence of past year suicide attempt across Santa Clara County school districts

Weighted prevalence of past year suicide attempt was calculated for the 2013–2014 CHKS administration using data pooled across five Santa Clara County school districts. These districts included: East Side Union High School District, Gilroy Unified School District, Morgan Hill Unified School District, Mountain View-Los Altos Union High and Santa Clara Unified School District. There was considerable variation in the school districts assessing past year suicide attempt; therefore, additional analyses of prevalence of past year suicide attempt in previous CHKS surveys was not conducted.

The weighted prevalence of past year suicide attempt among Santa Clara County high school students from five school districts participating in the 2013–2014 CHKS administration was 9.0% (n=1093) (Data not shown). The national estimates of past year suicide attempt based on data from the Youth Risk Behavior Suicide conducted among high school students from other communities in the United States in 2013 was 8.0%.[20] Please note, that 19.0% (n=2781) of respondents completing the 2013–2014 CHKS administration left the item about past year suicide attempt blank, therefore this prevalence may be an under- or overestimation.

Prevalence of past year suicidal ideation, and suicide attempt in Palo Alto Unified school district, PAUSD Special Module

Prevalence of past year suicidal ideation and suicide attempt among public high school students at PAUSD were assessed using the PAUSD Special Module from the 2015–2016 CHKS administration. Please note that there was no weights in the analyses of the Palo Alto Unified school district Special Module from the 2015–2016. A total of 1568 public high school students completed the 2015-2016 CHKS administration. Of students answering the questions, 25.4% (n=373) reported having past year suicidal ideation, and 7.3% (n=107) reported making a suicide attempt in the past year. Please note that

for both variables, there were approximately 100 missing cases. Therefore, these estimates could be an under- or over-estimate of the actual prevalence of pat year suicidal ideation or attempt. Among students who reported attempting suicide in the past year and also responded to a question about the number of suicide attempts they had made in the past year, 43.8% (n=61) reported they had made more than 2 attempts. Comparison of prevalence of past year suicidal ideation or attempt by year of survey administration should be made with caution due to survey limitations. Please see the data source section describing the CHKS dataset for additional information.

Risk and protective factors for past year suicidal ideation in Palo Alto Unified School District, PAUSD Special Module

Risk and protective factors for past year suicidal ideation among public high school students at PAUSD were assessed using the PAUSD Special Module from the 2015–2016 CHKS administration.

Results from logistic regression analyses conducted using data pooled from five school districts in Santa Clara County are presented in Table 42, and the following outlines significant risk and protective factors.

Statistically significant protective factors for past year suicidal ideation among PAUSD high school students based on the PAUSD Special Module were:

- Individual level perceptions
    - Know where to go for help with a problem
    - When need help, find someone to talk with
    - Try understand how other people feel and think
    - There is a purpose to my life
    - Understand my moods and feelings
    - I help other people
- Relationship with parents or adults in home
    - Parent or some other adult talks with me about my problems
    - Parent or some other adult always wants me to do my best
    - Help make decisions with my family
    - Family members really help and support one another
    - Feeling of togetherness in my family
- Relationship with teachers and adults in school

        - Teachers and other adults at school treat all students with respect
        - Teachers and other adults encourage me to work hard in school
        - Teachers and other adults work hard to help me with my schoolwork
        - Teachers give me a change to take part in classroom discussions or activities
        - Teachers help students catch up when they return from an absence
        - Have been disrespected or mistreated by an adult at this school because of race/ethnicity/nationality
    - Relationship with adults outside of home and school
        - There is an adult who tells me when I do a good job
        - There is an adult who notices when I am upset
        - There is an adult who always wants me to do my best
        - There is an adult whom I trust
    - Participation in activities
        - Part of clubs, sports teams, church/temple, etc.
        - Involved am involved in music, art, literature, sports, etc.
    - Social support/connectedness
        - Have a friend my own age who really cares about me.
        - There is an adult who really cares about me
    - School culture
        - All students are treated fairly when they break the rules
        - My school is safe for guys who are not as 'masculine' as other guys
        - My school is safe for girls who are not as 'feminine' as other girls
        - My school is safe for students with LGBTQ parents

Statistically significant risk factors for past year suicidal ideation among PAUSD high school students based on the PAUSD Special Module were:

- Female gender
- Sleep related difficulties
    - Sleep difficulties interfere with daily functioning
    - Sleep difficulties affected my school work
    - Felt sleepy during the school day
    - Difficulty concentrating on things because sleepy/tired
    - Difficult remembering things because sleepy/tired

Project Safety Net Community Survey

A total of 1065 respondents completed the Project Safety Net Community survey and also indicated that they lived in the city of Palo Alto. The majority of respondents were female (70.8%, n=750), and over a quarter were male (28.0%, n=296). Close to a quarter of respondents reported that they were current Palo Alto students (21.5%, n=229) and 44.7% (n=476) described themselves as

current parents of a Palo Alto student. Over half of student respondents were female (52.4%, n=119), and 44.1% (n=100) were male. Over three quarters of current parent respondents were female (77.7%, n=369), and 22.1% (n=105) were male.

Finally, 12.9% (n=135) of all respondents reported that they had taken Question, Persuade, Refer (QPR) training at some point in the past. Of those, 11.3% of current parents that responded to the survey had ever taken QPR training (n=53), and 6.6% (n=15) of current students had.

Perception of suicide

Across respondents to the Project Safety Net survey who were residents of Palo Alto, 89.1% of respondents perceived youth suicide as a problem in Palo Alto, and 82.4% perceived suicide to be preventable. Less than half (38.7%) of respondents indicated that they would be able to recognize a friend or family member thinking of killing themselves (Table 43). Additionally, about three quarters of respondents (69.2%) reported that they would feel comfortable talking with friends and family about suicide or comfortable telling friends or family if they themselves needed professional help. Furthermore, 71.0% reported that they would know how and where to get help for a friend or family member thinking about suicide, and 69.9% of respondents said if they were concerned that a friend or family member is considering suicide, they would ask them.

Among respondents to the survey that self-identified as residents of Palo Alto, current students were compared to current parents on level of agreement with items assessing perception of suicide (Table 43). This was done to determine whether there was consistency in attitudes and to identify target areas for educational outreach within the current school community. A summary of results follows.

Students were statistically significantly less likely than current parents to agree with the following:

- I am comfortable talking about suicide with my family and friends
- Depression is a medical disorder that responds to treatment
- I would be comfortable telling a friend or family member if I felt I needed professional help for depression

- If I am concerned that a friend or family member is considering suicide, I would ask them – it will not plant the idea in their mind

Students were statistically significantly more likely than current parents to agree with the following:

- I would recognize if a friend or family member was thinking about killing themselves
- Suicide is bound to happen
- Suicide is shameful, something to be hidden

Perception of risk factors

Across respondents to the Project Safety Net survey who self-identified as residents of Palo Alto, risk factors with the highest mean scores for how much they were perceived to contribute to youth suicide in Palo Alto were as follows: depression and mental health issues, academic distress or pressure, disconnected and socially isolated, family or cultural pressure, and life challenges (Table 44).

Risk factors with the lowest mean scores for how much they were perceived to contribute to youth suicide in Palo Alto were the following: alcohol, drug, or substance abuse, childhood trauma, family or friends with history of suicide, family economic distress, living with intellectual, mental, or physical disabilities, and unsafe media reporting (Table 44).

Among respondents to the survey that self-identified as residents of Palo Alto, current students were compared to current parents on level of agreement with items assessing perception of risk factors for suicide in Palo Alto. This was done to determine whether there was consistency in perception of risk factors and to identify target areas for educational outreach within the current school community. A summary of results follows.

Students had significantly lower scores for how much they perceived the following factors contributed to youth suicide in Palo Alto when compared to current parents:

- Alcohol, drug or substance abuse
- Bullying
- Depression mental health issues
- Disconnected and socially isolated
- Family or friends with history of suicide
- Family or cultural pressures
- Issues pertaining to gender identity or sexual orientation
- Lack of access to mental health care
- Poor coping skills

- Sleep deprivation or disorders
- Suicide "contagion"
- Family economic distress
- Unsafe reporting by media

Students had significantly higher scores for how much they perceived the following factors contributed to youth suicide in Palo Alto when compared to current parents:

- Academic distress or pressure
- Life challenges

Support for prevention

Finally, eleven items assessed level of support for various suicide prevention activities. More than three quarters of respondents who self-identified as residents of Palo Alto reported they supported the following suicide prevention efforts: efforts to improve access to mental health providers, school-based efforts to reduce unnecessary stress, efforts to strengthen culturally tailored mental health services for diverse communities, efforts to increase youth input and involvement in their school and community, a local public information campaign to reduce stigma, share resources, encourage help-seeking behaviors, provide "parenting" education , provide community-based youth suicide prevention programs, and require suicide prevention training for all who work with youth. The prevention activity with the lowest level of support was for means restriction at railroad tracks (Table 45).

Among respondents to the survey that self-identified as residents of Palo Alto, current students were compared to current parents on level of support for various suicide prevention activities. This was done to determine if there was consistency in support for suicide prevention and to identify where stakeholder groups may need additional discussion to identify efforts with broad stakeholder buy-in. Overall, students were significantly less likely than current parents to support all suicide prevention activities measured in the survey. A summary of results follows.

Students were statistically significantly less likely than current parents to support the following:

- Means restriction at the tracks
- School-based efforts to reduce unnecessary stress
- Efforts to improve access to mental health providers
- Efforts to strengthen culturally tailored mental health services for diverse communities

- Require suicide prevention training for all who work with youth
- Efforts to increase youth input and involvement in their schools and community
- Provide “parenting” education
- Provide community-based youth suicide prevention programs
- Media compliance with recommendations for safe reporting of suicide
- A local public information campaign to reduce stigma, share resources, and encourage help-seeking behaviors
- Mini-grants to community organizations and local groups to implement youth suicide prevention activities and trainings

Results: Objective 2

Objective 2: Examine the degree to which media coverage of youth suicides occurring from 2008 through 2015[15] in Santa Clara County, California, met safe suicide reporting guidelines.

Data Sources Used: Data abstracted from media articles identified through systematic search strategy.

A total of 438 articles were identified based on the search terms. Of these, 246 met inclusion criteria and were read and scored using the checklist. The fewest articles (n=8) were from 2008 and the most (n=53) were from 2009 (Figure 21). Due to the small number, the 2008 articles were excluded from the yearly comparison but were included in the comparison by source.

The percent of articles in each year by media reporting characteristic is shown in Table 46. Only characteristics that appeared in articles in >1 year were included in the table, but additional characteristics were used to calculate the total numbers of positive and negative characteristics found in a given article. The most common characteristic across all years was the inclusion of a description of the method of suicide used. The inclusion of method of suicide used ranged from 83% of 18 articles published in 2012 to 100% of 23 articles published in 2011. Among articles that included a description of the method of suicide, 76% were about train-related suicides, 11% were about suicides by jumping from a height, and 7% were about firearm-related suicides (data not shown). Six percent of 2009 articles and 3% of 2010 articles contained photographs of the method of suicide, such as a train stopped at the location of a death. There were no such photographs during 2011–2014, while 9% of 2015 articles included photographs of the method of suicide.

The proportion of articles with a description of the location of suicide-related injury or death ranged from a minimum of 72% in 2012 to a maximum of 96% in 2011 (Table 46). The type of

[15] This represents the initial time-frame of focus for this investigation. From 2008–2015 there were a total of 156 youth, age 10–24, suicide deaths that occurred in Santa Clara County; representing 66.4% of all youth suicide deaths that occurred in Santa Clara County during this time period. The time frame for the media scan was different than what was used for CDC WONDER, vital statistics, and medical examiner data because as the Epi-Aid data abstraction of medical examiner reports was planned and began, the community requested extending data abstraction of medical examiner reports to include 2003–2015. Therefore, data from 2003–2015 were examined for fatal suicidal behavior when data were available and applicable.

description varied; some articles included vague information about being on the railroad tracks near a crossing while others gave specific details about exact location and how the decedent likely arrived there. Many articles also mentioned that the location of suicide death for the subject of the article was the same location as previous deaths (some with mention that previous deaths were by suicide, others without such mention). Eight percent of 2009 articles and 6% of 2010 articles included photographs of the location. No photographs of locations were included in articles during 2011–2014, but 6% of 2015 articles included photographs of location.

Similar to the pattern seen for inclusion of photographs of methods of suicide and suicide-related injury location, photographs of memorials and/or grieving friends and family were included in 9% of 2009 articles and 3% of 2010 articles, in none of the 2011–2014 articles, and in 9% of 2015 articles (see Table 46). Less common, and limited to 2009 and 2010 articles, was inclusion of pictures of the investigation scene (4% and 3%, respectively). While only present in 2009 articles (and only in 4% of articles), it is of note that some articles included photographs in which a body under a tarp was clearly visible; in some cases multiple tarps present in the photographs indicated dismemberment.

With regard to use of a sensational headline, 40% of 2009 articles used a sensational headline compared to only 21% of 2015 articles (Table 46). This decline started in 2012 and was maintained through 2015, with the proportion of articles with a sensational headline in each year during 2012–2015 statistically significantly lower than in 2009. Similar sustained improvement was seen in the reduced use of the phrase, "commit suicide," use of which is recommended against (32% in 2009 compared to 6% in 2015), and the increased inclusion of any suicide prevention hotline number (4% in 2009 compared to 40% in 2015). The number of negative characteristics[16] present (out of a total of 31 characteristics)

[16] **Negative characteristics:** big, prominent, or sensational headline; photos of location or method of suicide or suicide attempt; photos of memorials/grieving; use of strong or dramatic language; description of suicide as inexplicable; use of improper terminology; reporting on suicide similar to a crime; inclusion of information about or contents of suicide note; photos of bodies/investigation scene; inclusion of individual's name or school; open comments section; oversimplification of suicide; description of location or method of suicide in text.

declined over time, from a mean (range) of 5.3 (2–11) in 2009 to 3.9 (1–9) in 2015, and the number of positive characteristics[17] (out of a total of 16 characteristics) increased from 0.3 (0–4) in 2009 to 1.2 (0–7) in 2015. These trends are promising but suggest the need to continue to work to increase use of safe suicide reporting guidelines.

For some examined characteristics of reporting, there appeared to be some improvement over time that showed signs of reversing or significant fluctuations over time. Use of strong language declined significantly from 15% in 2009 to 0% in 2014, but significantly increased from 2014 to 21% in 2015. Seventeen percent of 2009 articles included some information about a suicide note or message, but no identified 2010–2012 articles contained this information. The percent of articles with suicide note or message information increased to 10% in 2013 and 9% in 2014, then decreased to 2% in 2015.

The percent of online articles that had an open comments section available ranged from a minimum of 53% in 2011 to a maximum of 78% in 2013, and the number of comments ranged from 0 to over 200. Comment sections allowed for memorialization of the decedent (the Safe Reporting Guidelines recommend against memorialization), although the proportion with memorials in comments declined over time, from 33% in 2009 to 0% in 2015. While not captured by the abstraction tool, the comments in some cases were a source of information, with commenters posting hotline numbers and other resource information. However, the comments section also allowed for heated exchanges among commenters, misinformation about suicide, and in some cases, negative statements about the decedents.

When looking at articles according to source rather than year, there was similarity across sources in the inclusion of descriptions of methods and suicide-related injury locations (Table 47). Source refers to the seven separate media outlets that had articles that were identified as part of the scan. As part of the ProQuest Newsstand search, articles were identified from disparate outlets, and these were collapsed as

[17] **Positive characteristics:** inclusion of local/national hotline number and/or logo; inclusion of warning signs; use of proper terminology; discussion of suicide as a public health issue; information from suicide prevention experts; description of suicide as preventable and complex; inclusion of causes of suicide; inclusion of treatment options.

an “other” source category. Inclusion of suicide-related injury location descriptions ranged from a minimum of 65% of “other” source articles to a maximum of 95% of Source E articles. Inclusion of descriptions of suicide methods ranged from a minimum of 76% of “other” source articles to a maximum of 100% of Source A, Source D, and Source E articles. Inclusion of photographs in articles showed more of a pattern (Table 47). None of the Source A or Source C articles contained photographs, and only 3% of Source D articles contained photographs of methods of suicide (and no photographs in any other category). Only Source E had articles containing all categories of photographs (suicide-related injury location, method of suicide, memorials/grieving, body, investigation scene). Sources F and G contained all categories of photographs except photographs of bodies.

There was variability across sources in the use of a sensational headline. Use of a sensational headline ranged from a minimum of 5% of Source A articles to a maximum of 41% of “other” source articles. Between 21% and 29% of articles from Sources B, C, D, E, F, and G used a sensational headline. Sources differed in the proportion of articles that identified the decedent by name. For instance, 18% of Source B articles included a name, while 74% of Source A articles included a name. The proportion of articles containing any hotline number ranged from 8% (Source D) to 21% (Source B, Source E, and Source F). The number of negative characteristics ranged from a mean (range) of 3.2 (2–7) per article for the Source D to 5.3 (2–11) per article for Source E; number of positive characteristics ranged from 0.1 (0–1) for Source A articles to 1.5 (0–7) for Source B articles.

Among articles for which the age of the decedent was included, in 60% of the identified articles the decedent was <25 years old, and in 40% the decedent was 25 years or older (data not shown). This does not take into account multiple articles written about the same decedents; the abstraction did not allow for that distinction. Articles about decedents of <25 years were statistically significantly ($p<0.05$) more likely than articles about decedents 25 years or older to include 1) pictures of memorials/grieving; 2) strong language; 3) the term “commit suicide”; 4) information about a suicide note or message; 5)

local, national, or any suicide prevention hotline number; and 6) a description of suicide as a complex problem ($p<0.05$). Articles about decedents 25 years old or older were statistically significantly ($p<0.05$) more likely than articles about decedents of <25 years to include: 1) photographs of the investigation scene; and 2) the name of the decedent.

Results: Objective 3

Objective 3: Inventory and compare youth suicide prevention policies, activities, and protocols used in the community to evidence-based and national recommendations.

Data Sources Used: Inventory of current programs, policies, and activities being utilized to target suicide prevention that were shared by SCCPHD and community stakeholders with the Epi-Aid team.

Materials related to programs, policies, and activities being utilized as part of suicide prevention efforts in Santa Clara County were shared with the Epi-Aid team. These materials included those specifically related to suicide, as well as those that are related to suicide prevention but that focused on other health behaviors or risk factors (e.g., bullying, alcohol and substance use). For the purposes of this investigation, and consistent with the objective for the inventory, only programs, policies and activities explicitly focused on suicide prevention were reviewed.

Of all programs, policies, plans, activities, and protocols shared with the Epi-Aid team, a total of 51 were identified as specifically related to suicide prevention. Overall, programs, activities, policies and plans shared for the inventory were predominately implemented in the Palo Alto Unified School District (64.7%, n=33), followed by Santa Clara County (13.7%, n=7), or another organization (22.0%, n=11). Other organizations include the City of Palo Alto, other school districts, or medical or community organizations.

Overview of prevention programs and activities

The majority of the 51 programs were focused on prevention activities or programs (78%, n=40). Prevention activities or programs included the following non-mutually exclusive categories: education (60.0%, n=24), gatekeeper training (25.0%, n=10), clinical services (27.5%, n=11), and crisis-related services (30.0%, n=11).

Education programs included, but were not limited to, Applied Suicide Intervention Skills Training (ASIST), student forums, health and wellness outreach, student dialogues, gatekeeper training,

mental health training, and seminars/presentations or educational events. Prevention activities that provided education were targeted primarily to adults (58.3%, n=14), school communities (54.2%, n=13), youth (54.2%, n=13), and parents (33.3%, n=8) (targets not mutually exclusive).

Gatekeeper training programs included, but were not limited to, ASIST; Question, Persuade, Refer (QPR) training; and Mental Health First Aid. Prevention activities that provided gatekeeper training were targeted primarily to youth (50.0%, n=5), adults (30.0%, n=3), and school communities (30.0%, n=3) (targets not mutually exclusive).

Clinical-related services included, but were not limited to, counseling and clinical service availability, wellness coordinators, mental health services, crisis stabilization unit, and mental health therapists. Prevention activities that provided clinical services were targeted primarily to school aged youth (100%, n=11), and to a lesser extent parents (27.3%, n=3) (targets not mutually exclusive).

Crisis-related services included, but were not limited to, crisis lines, crisis stabilization units, hospitalization assistance, parent education/seminars, mental health and wellness coordinator crisis related services and safety plans. Prevention activities that provided crisis-related services were targeted primarily to school aged youth (91.7%, n=11), adults (58.3%, n=7), clinicians (41.7%, n=5), parents (58.3%, n=7), and school communities (50.0%, n=6) (targets not mutually exclusive).

Overall, and across all program types, the majority are targeting school aged youth, with other populations of focus including parents and school staff. A limited number of programs are targeted to the community more broadly, and none were identified as specifically targeted to young adults, or non-school aged youth. Additionally, across all programs and activities, less than one third (30.0%, n=12) of programs and activities were indicated as being evaluated for process and/or outcome measures. Current evaluation of efforts were limited, focusing primarily on the total number of people reached or general, often anecdotal, assessments of program acceptability. Therefore it is not possible to determine whether

programs and activities being used in Santa Clara County are effective or whether they are reaching adolescents and young adults at risk for suicide.

Overview of prevention plans or policies

A minority of the 51 programs shared with the Epi-Aid team were prevention plans (9.7%, n=5) or policies (9.7%, n=5). Plans included, but were not limited to, the use of the Comprehensive Suicide Prevention Toolkit for Schools, Re-Entry Plan Process, and County-wide suicide prevention strategic plan. Policies included, but were not limited to, a homework policy, suicide prevention administration regulations, and suicide prevention and related mental health promotion policy. The primary targets for policies or plans were school communities (63.6%, n=7), adults (54.6%, n=6), and youth (45.5%, n=5) (targets not mutually exclusive).

Only the county-wide suicide prevention strategic plan was indicated as being evaluated, with yearly annual reports disseminated publically which contain information on progress and next steps. This evaluation was limited to process measures such as number of trainings or crisis line volume. None of the other policies or plans shared for the inventory were indicated as being evaluated for either process or outcome measures.

CDC's Preventing Suicide: A Technical Package of Policies, Programs, and Practices

The CDC has developed a Suicide Prevention Technical Package that includes a core set of strategies that can be used in communities to reduce suicide and associated risk factors for suicide.[25] These strategies are based on the best available evidence and include: strengthening economic supports, strengthening access and delivery of suicide care, creating protective environments, promoting connectedness, teaching coping and problem-solving skills, identifying and supporting people at risk, and lessening harms and preventing future risk.

Table 48 provides examples of programs and policies being used in Santa Clara County that align with the strategies included in CDC's Suicide Prevention Technical Package. A selection of some, but not all, programs and policies being used in Santa Clara County were categorized based on each strategy in the Suicide Prevention Technical Package. Overall, Santa Clara County is engaging in several efforts that are consistent with strategies in the Suicide Prevention Technical Package. For example, multiple programs are being implemented to identify and assist persons at risk for suicide. This includes gatekeeper training and risk assessments and outreach from school-based mental health providers. Although several programs and policies being used in Santa Clara County align with elements of the Suicide Prevention Technical Package, it is unclear the degree to which the programs and activities used in Santa Clara County are part of its strategic plan, or whether these programs represent an ad hoc approach.

Evidence-based programs

Across all programs shared with the Epi-Aid team, including those that aligned with strategies in CDC's Suicide Prevention Technical Package, a minority of programs were identified as having evidence supporting their efficacy. This was assessed by examining programs and policies identified by the Epi-Aid team in relation to: (1) programs and policies described in CDC's Suicide Prevention Technical Package, and (2) programs and policies listed as "Programs with Evidence of Effectiveness" within the Suicide Prevention Resource Center (SPRC) Programs and Practices database. Programs listed in the SPRC Programs and Practices database are identified through SAMHSA's National Registry of Evidence-Based Programs and Practices (NREPP),[26] and through SPRC's Evidence-Based Practices Project.[27]

The following programs being used in Santa Clara County were identified in CDC's Suicide Prevention Technical Package and the SPRC Programs and Practices database: Applied Suicide

Intervention Skills Training (ASIST), Sources of Strength, and QPR gatekeeper training. ASIST aligns with the strategy of "Identify and support people at risk" in CDC's Suicide Prevention Technical Package[25] and is a gatekeeper training program designed to increase suicide first aid skills among those trained. Based on findings from other communities, suicidal individuals that spoke with ASIST trained crisis hotline staff were found to be less likely to feel depressed and suicidal following the phone call, and crisis hotline staff were found to have improved skills in developing a connection with the suicidal caller. Sources of Strength aligns with the strategy of "Promote Connectedness" in the Suicide Prevention Technical Package[25] and is a prevention program that works to build protective factors among vulnerable youth by using peer leaders and adult advisors.[36] The goal of the program is to reshape norms about suicide, help seeking, and communication, and to educate about coping strategies. Based on findings from other communities, this program has been found to be effective at improving perceived support from adults, increased likelihood of peer leaders to refer suicidal peers, and improved coping attitudes among peer leaders. Finally, QPR Gatekeeper Training for Suicide Prevention aligns with the strategy of "Identify and support people at risk" in the Suicide Prevention Technical Package[25] and is a program that consists of a one to two, hour long, educational and gatekeeper training program.[37] QPR Gatekeeper Training is not included in the Technical Package, but is listed in the SPRC Programs and Practices database. The goal of QPR is to train individuals to intervene and help a suicidal person and the program has been found to improve knowledge of suicide and suicide prevention resources, self-efficacy and skills of the gatekeeper, and sharing of information from the training by gatekeepers with others.[37]

Strategic planning

The Suicide Prevention Resource Center recommends that community stakeholders and groups that engage in suicide prevention activities develop a strategic plan to guide the selection and

implementation of suicide prevention activities.[38] The strategic planning process is made up of four iterative steps: (1) Use data to describe suicide in the community; (2) Select long-term goals based on the available data; (3) Prioritize risk and protective factors on which to target programs and policies; and (4) Select a combination of evidence-based strategies and approaches.

Santa Clara County has a county-wide suicide prevention strategic plan that incorporates many of these suggested steps.[39] For example, the county-wide strategic plan used available data to inform the types of prevention strategies and approaches to prioritize. In addition, it engaged with a range of stakeholders to identify community-identified priorities and needs, and incorporated these into their strategic plan. As a result of these efforts, the Santa Clara County Strategic Plan has outlined five strategies to be used in the county, and suicide prevention efforts engaged at the county level are mapped to these strategies. In addition, the county provides regular, publically available, annual reports with detailed information about progress.[40] Evaluation of the efforts that are part of the county-wide strategic plan are limited. Evaluation data included in the most recent annual report focus primarily on process measures, such as number of trainings or people reached, events held, new partnerships formed, and crisis line volume numbers. This information provides information on the reach of these programs and represents an important part of program evaluation. However, without outcome evaluation results, it is unclear whether the strategies that are part of the county-wide strategic plan are resulting in positive outcomes on suicide and related behaviors in Santa Clara County.

Results: Objective 4

Objective 4: Synthesize information from objectives 1–3 to make recommendations on youth suicide prevention strategies that can be used at the school-, community-, and county- levels.

Data Sources: CDC WONDER, vital statistics, medical examiner reports, National Violent Death Reporting System, emergency department data, patient discharge data, Developmental Assets Survey, California Healthy Kids Survey, Project Safety Net Community Survey, media scan, inventory of programs and policies.

Multiple Prevention Approaches to Address Multiple Risk Factors

Youth suicide is complex, and typically has multiple contributing factors. Therefore, the use of a comprehensive and coordinated prevention approach that targets multiple risk factors may be the most effective strategy.[41-43] Consistent with research and work in other communities, youth in Santa Clara County had multiple precipitating circumstances for fatal suicidal behavior and multiple associated risk factors for nonfatal suicidal behavior. Table 49 synthesizes the risk and protective factors at all levels of the social ecology for nonfatal suicidal behavior identified in this investigation. Precipitating circumstances for fatal suicide behavior and risk factors for nonfatal suicidal behavior that were identified in Santa Clara County were highly consistent with risk factors for suicidal behavior identified in research in other communities;[44-50] and these circumstances and factors were also consistent across cities and school districts in Santa Clara County that were examined in this investigation. Based on these consistencies, Santa Clara County stakeholders can utilize existing literature to help inform their efforts and to provide additional insight into the relationship risk and protective factors have with fatal and nonfatal suicidal behavior among youth.

The U.S. Air Force Suicide Prevention Program and the White Mountain Apache Suicide Surveillance and Prevention System, are examples of effective, comprehensive and coordinated, prevention approaches that utilize multiple programs targeting multiple risk factors.[51-53] In general, any one suicide program can only impact some risk and protective factors for suicidal behavior. Additionally, program efficacy depends on the population of focus, with some programs more

successful in one group versus another. Therefore, use of multiple programs and strategies as part of a comprehensive and coordinated prevention approach may be more effective than using single, unconnected, programs. In Santa Clara County, a comprehensive and coordinated prevention approach could include multiple components, such as increasing all youth's coping skills, implementing prevention strategies focused on youth with known risk factors for suicide, increasing awareness and utilization of crisis support services, and improving access to mental health care.

Community stakeholders in Santa Clara County can use results from this investigation to help identify populations that could benefit from multiple programs as part of a comprehensive and coordinated approach to suicide prevention. For example, based on findings from Vital Statistics, medical examiner reports and youth surveys, these populations could include: (1) Santa Clara County cities with elevated suicide rates (e.g., Morgan Hill and Palo Alto), (2) Santa Clara County cities with a high burden of suicide (e.g., San Jose), (3) young adults aged 20 to 24 throughout Santa Clara County, and (4) at-risk populations across Santa Clara County such as lesbian, gay, or bisexual youth; youth who are missing or skipping school; youth engaging in delinquent activities; youth with sudden changes in behavior or school/job performance; youth who are isolated; youth experiencing family conflict or violence; youth with identified mental health problems; and youth with involvement with Child Protective Services or the Criminal Justice system.[18]

In addition to these specific populations, data from medical examiner reports and youth surveys also indicated that many precipitating circumstances for fatal suicidal behavior, as well as risk factors and protective factors for nonfatal suicidal behavior, were consistent across Santa Clara County cities and school districts. Therefore, county-wide implementation of a comprehensive and coordinated

[18] For more information on suicide prevention strategies and approaches to be used among youth in contact with the criminal justice system, please refer to the National Action Alliance for Suicide Prevention's website "Youth in Contact with the Juvenile Justice System Task Force" website: http://actionallianceforsuicideprevention.org/youth-contact-juvenile-justice-system

prevention approach to suicide prevention that focuses on common risk factors for youth suicide could also be an effective approach.

Access to Evidence-Based Mental Health Care

Mental health problems are common risk factors for youth suicide.[44-50] The impact of mental health was also seen in Santa Clara County, with data from medical examiner reports and youth surveys, underscoring the relationship mental health problems have with fatal and nonfatal suicidal behavior at the county, city, and school district levels. Therefore, suicide prevention efforts in Santa Clara County may need to consider ensuring youth have access to quality mental health services that incorporate evidence-based treatment modalities as part of a comprehensive and coordinated prevention approach. The Zero Suicide Initiative, for example, provides information and guidance on how health care systems can engage in effective suicide prevention practices.[54]

Community stakeholders currently engaged in providing clinical services targeting suicidal youth can examine their treatment approaches to determine alignment with best practices. Examples of clinical interventions, and the level of evidence supporting their efficacy for preventing suicide, are described in a recent review that can be found in the References portion of this report.[55] For clinical services implemented in school settings, additional considerations may be needed with regard to how these services can be structured. Resources and recommendations are available to support stakeholders implementing school-based clinical services.[56-58]

In Santa Clara County, close to one third of youth suicide decedents were currently receiving treatment for a mental illness at the time of their death, meaning they had contact with healthcare providers prior to death. Studies in other communities have found that suicide decedents commonly had contact with health care providers prior to death.[59] Therefore, primary care physicians in Santa Clara County may benefit from education focused on recognizing and effectively treating depression and

suicidal behavior among youth. General practitioner education was associated with an increase in antidepressant use and a decrease in suicide rates when used in other communities.[55] Additionally, the U.S. Preventive Services Task Force recommends that adolescents and young adults, aged 12 to 18, should be screened for major depressive disorder when services and resources are available to ensure treatment and follow-up.[60]

In this investigation, adolescents, and female adolescents in particular, were more likely than young adults to currently be receiving treatment or have ever received treatment for a mental illness. Based on these findings, community stakeholders may need to consider how to promote mental health service utilization among young adults, aged 20 to 24, and among male youth of all ages. This may require the community to engage in additional investigations to identify barriers to care among young adults and male youth (of all ages) and to identify ways to promote help-seeking and service utilization.

Of decedents with mental health problems that died in Santa Clara County, several were also identified as having severe mental health problems, such as schizophrenia and hallucinations. Based on findings from other communities, patients with schizophrenia are at increased risk for suicide, and risk factors for suicide among patients with schizophrenia include male gender, non-compliance with treatment, frequent short hospitalizations, psychosis, depression, family history of suicide, high IQ, previous suicide attempt/behavior, recent loss, and a high level of education.[61-63] Stakeholders in Santa Clara County may consider engaging in focused suicide prevention efforts for this high-risk population. Prevention efforts would include clinical interventions, such as the combined use of psychopharmacology and psychotherapy, such as cognitive behavior therapy, and early detection and identification of youth with symptoms of schizophrenia and other severe mental illness.[55,64,65]

Family Relationships and Family-Based Programs

According to the literature, connection to family and positive relationships with parents/guardians are significant protective factors for suicidal behavior among youth.[45,66-74] In Santa Clara County, family relationships were identified as a protective factor based on data examined from youth surveys. Therefore, suicide prevention efforts in Santa Clara County could consider including programs and outreach that focus on strengthening family-youth and parent-youth relationships/connection as part of a comprehensive and coordinated prevention approach. There are several evidence-based programs that focus on bolstering the protective factor of parent-youth relationships, while also targeting risk factors for suicide such as substance use and delinquency. Examples of these types of programs include Multisystemic Therapy,[75] Parent Management Training,[76] Strengthening Families Program,[77] New Beginnings,[78] Incredible Years,[79] and Early Pathways.[80] Additionally, engaging in frequent family meals is a home-based approach that has been found to be associated with improvements in a range of outcomes, including suicidal behavior, depression, self-esteem, substance use, violence, and disordered eating.[81] Although family-based approaches focus on youth still living within a family unit, this approach could bolster this protective factor in the short and long-term. Therefore, improving family connection could translate to long term positive effects for youth as they transition into adulthood.

In addition to strategies that help all families in Santa Clara County strengthen parent-youth connections, data from this investigation suggest that suicide prevention efforts could focus on reducing adverse childhood experiences among youth. For example, child abuse and neglect was identified as a significant risk factor for suicide attempt using data from the Developmental Assets Survey in Palo Alto. Exposure to family conflict or violence during childhood have been identified as strong predictors of suicide-related behaviors in adulthood in other communities.[82] Fortunately, child abuse and neglect is preventable and preventing child abuse and neglect can lower the incidence of multiple health problems

and risk behaviors during adolescence and young adulthood. Community stakeholders can utilize CDC's publication "*Preventing Child Abuse and Neglect: A Technical Package for Policy, Norm and Programmatic Activities*" to help identify evidence-based strategies to prevent child maltreatment and strengthen family relationships and connections.[79] Additionally, CDC's "*Essentials for Childhood: Steps to Create Safe, Stable, Nurturing Relationships*" provides further strategies and steps for how to prevent child maltreatment and neglect.[83]

Connection to School and School-Based Programs

Connection to school has been identified as a protective factor for suicide in several studies conducted in multiple communities.[66,69,71,74] In Santa Clara County, connection to and positive relationships with school and teachers were also identified as protective factors for nonfatal suicidal behavior. Therefore, suicide prevention efforts in Santa Clara County could consider including programs that focus on building youth connection to schools as part of a comprehensive and coordinated prevention approach. Stakeholders can utilize resources available through CDC, such as CDC's report "*School Connectedness: Strategies for Increasing Protective Factors Among Youth*"[84] and other resources available through the CDC's Division of Adolescent and School Health website about how to build youth connection to school.[85]

In addition to focusing efforts on improving youth connectedness to schools, social-emotional learning programs that bolster protective factors and reduce risk factors for suicidal behavior among youth may be particularly effective.[86] Social-emotional learning programs improve emotional regulation, problem solving, help seeking, coping skills, and conflict resolution, and can be implemented to entire student groups.[25] Stakeholders considering implementing school-based suicide prevention programs are encouraged to identify programs that target multiple risk and protective factors for suicidal behavior. Selection of programs that only focus on suicide prevention or suicidal behavior may be less effective

than taking a more comprehensive approach that focuses on a broader range of risk and protective factors identified in this investigation.[41,42]

Additionally, school-based programs may be most effective if they include skill building and do not rely exclusively on information/education, such as one-time lectures and school assemblies.[41,87] In general, increasing knowledge only is unlikely to result in behavior change.[87] Suicidal youth have, in other communities, been identified as having challenges with problem-solving, coping, and cognitive skills.[50] Therefore, programs for youth to build skills in problem solving and coping could help youth develop protective factors and help youth manage well stressful situations. Examples of school-based programs that build skills for self-regulation of behavior/emotions among younger children include: Positive Action,[88] the Good Behavior Game,[89] and Promoting Alternative Thinking Strategies.[90] Examples of programs for older adolescents that build coping skills include Youth Aware of Mental Health Program (YAM),[91] and the Life Skills Training program.[92] Another program is Sources of Strength, which is a school based school program that has been found to improve adaptive norms regarding suicide, connectedness to adults, and school engagement as well as decrease maladaptive coping attitudes when implemented in other communities.[93]

When implementing school-based programs, it may be important for community stakeholders to identify partners who will be implementing these programs and to utilize strategies to best support those partners. For example, if teachers are asked to implement particular programs, their success can be supported by school and district level administration through the provision of training, resources, and support to sustain prevention efforts. Resources and recommendations to help community stakeholders plan and implement school-based prevention programs are available.[58,94]

Youth surveys examined as part of this investigation did not provide details about risk and protective factors for youth no longer in high school. Therefore, community stakeholders are encouraged to identify additional data sources to examine risk and protective factors for suicidal behavior among

young adults. This could include young adults who are attending colleges and universities in Santa Clara County as well as young adults not attending schools. Community stakeholders could also reach out to local colleges and universities to identify ways to partner with these institutions and identify school-based interventions for college students that are developmentally appropriate for older youth.

Identify and Support People At-Risk

In Santa Clara County, medical examiner reports indicated that over a quarter of suicide decedents had disclosed their thoughts of suicide prior to death. Other warning signs identified include increased use of drugs/alcohol, agitation and reckless behavior, withdrawing from friends and family (including withdrawing from previously enjoyed activities), sleeping too much/too little, extreme mood swings, showing rage, putting affairs in order (e.g., writing a will), and rehearsing suicide behavior. Based on these findings, suicide prevention efforts in Santa Clara County could consider continuing, and potentially expanding, current gatekeeper prevention efforts being implemented at the county, city, and school district levels as part of a comprehensive and coordinated prevention approach. Gatekeeper training trains individuals, such as teachers, coaches, and medical providers, on how to identify those at risk for suicide and respond effectively, including facilitating treatment seeking and support services.[95] While limited information is available about the effects of gatekeeper programs on preventing suicidal behavior,[55,96,97] evaluations in other communities have found these programs can improve short-term knowledge, skills and attitudes.[95,96] Therefore, gatekeeper training may need to be implemented alongside other evidence-based programs as part of a comprehensive and coordinated prevention approach. Additionally, as gatekeeper programs tend to have short-term effects on knowledge, skills, and attitudes, one-time gatekeeper training programs may have a limited long-term impact. Therefore, gatekeeper training programs with booster sessions could have a stronger prevention effect.

Medical examiner reports examined as part of this investigation also indicated that over a quarter of suicide decedents had previously made a suicide attempt, and several had a history of multiple suicide attempts, had a past hospitalization for suicidal behavior, or had multiple involuntary mental health holds for self-harm (e.g., 5150 hold). Previous suicide attempt has been identified in other communities as one of the strongest predictors of suicide.[50,98] Based on these data, Santa Clara County could, as part of a comprehensive and coordinated prevention approach, focus efforts on the care and follow-up of youth after admission or other treatment for suicidal behavior. This could include implementing prevention programs in emergency departments, focusing efforts on encouraging continuity of care following discharge, and identifying ways to ensure access to pediatric psychiatric beds.

Emergency departments have been identified in other communities as potentially key locations to engage in suicide prevention programs.[99] Several emergency department-based programs have shown promise at improving post-discharge service utilization,[100,101] reducing suicidal behavior,[102,103] and increasing family engagement in ways to reduce access to lethal means for family members at-risk of suicide.[104] Additionally, follow-up programs[105-110] and short, post-discharge interventions[111] have shown some efficacy at reducing suicidal behavior during this at-risk time. Community stakeholders can refer to the aforementioned cited studies for more information about how these programs were implemented and their outcomes when considering their incorporation into local prevention approaches.

In addition to emergency department-based programs, stakeholders could also consider focusing efforts to ensure youth have continuity of care following discharge for suicidal behavior. Continuity of care refers to the planned transition of a patient following discharge, and includes elements such as screening, discussion of treatment options, discharge planning, referral to follow-up services, and post-discharge follow-up.[112] Studies in other communities have identified the time period immediately following discharge for suicidal behaviors as particularly high risk for adverse outcomes, such as suicidal ideation, attempt, and death by suicide.[113-120] Due to the critical nature of continuity of care

during this time period, the Suicide Prevention Resource Center recommends a comprehensive discharge process that includes arrangement of follow-up appointments (including the facilitation of a phone call between the patient and provider while still admitted), development of a personalized safety plan, and verbal review of post-discharge arrangements and of the importance of follow-up care.[121]

Within Santa Clara County, Uplift Family Services' Crisis Stabilization Unit was identified by the Santa Clara County Behavioral Health Department as an example of pediatric crisis services that use the principles of continuity of care. These principles include transportation, counseling, safety planning, referrals, and wrap-around community transition services for the youth and their families. This program is limited in the number of youth that can be seen; however, it does represent a community-based program that may serve as a local example for crisis intervention and discharge policies. As this program, and other similar models may be considered, the community is encouraged to examine any existing indicators of the success of these activities and to design ongoing evaluation strategies to inform program selection, implementation, and refinement.

Finally, analyses of patient discharge data as part of this investigation indicated that younger patients in Santa Clara County (10–19 years old) were more likely than older patients (20–24 years old) to be admitted to hospitals outside of the County. This may reflect the lack of inpatient pediatric psychiatric beds in Santa Clara County, a gap in service that was described by community stakeholders in the county. The need to admit pediatric patients to facilities outside of the county could introduce challenges to continuity of care. For example, hospitals outside of the county may not have knowledge about Santa Clara County service providers to which to refer youth following discharge, and this could result in a gap in treatment. Stakeholders in Santa Clara County may need to consider how to work with current mental health service providers and hospitals in nearby counties to overcome the current gap in access to in-patient pediatric psychiatric beds within the county.

Crisis Intervention

Stressful life events, such as a relationship break up, have been identified in other communities as recognized risk factors for youth suicide.[45,50] In Santa Clara County, based on data from medical examiner reports, recent crisis was a common precipitating circumstance. Youth in Santa Clara County were significantly more likely than those in comparison counties to have experienced a recent crisis. As part of a comprehensive and coordinated prevention approach, Santa Clara County may benefit from implementing crisis intervention approaches that are intended to impact key suicide risk factors.

Crisis hot- and warm-lines are examples of crisis intervention. These provide youth in crisis with access to immediate help and referral services via telephone hotline, online chat, or text messaging. Crisis hot and warm lines can also be a supportive resource for family, friends, parents, and intimate partners of youth in crisis, and promotion efforts could potentially help these individual to be aware of these resources. Santa Clara County currently has a crisis line (1-855-278-4204), and the National Suicide Prevention Lifeline (1-800-273-8255) is also available. The National Suicide Prevention Lifeline offers crisis lines in Spanish (1-888-628-9454), options for deaf and hard of hearing (1-800-799-4889), a line dedicated to veterans (1-800-8255), and helplines specifically for disaster distress (1-800-985-5990). As this investigation focused on youth in Santa Clara County, and several suicide decedents were noted in medical examiner reports to have been texting with friends and family, crisis chat-lines may be an additional prevention resource for youth. The National Suicide Prevention Lifeline has chat options available through their website (http://suicidepreventionlifeline.org/talk-to-someone-now/). Stakeholders in Santa Clara County could consider focusing efforts to increase awareness and use of these types of services to help youth, and people associated/interacting with youth, in crisis. This includes identifying ways to promote crisis and warm lines to youth and to people associated/interacting with youth. As many of the crises experienced by youth in the community were not specific to suicide, but were related to intimate partner problems, relationship issues, arguments, or school problems, crisis

lines could be marketed so that they are identified as an option for all crises, not just suicide. Crisis lines could help support youth to deal with crises before they lead to suicidal thoughts or actions. Crisis lines may, however, require additional resources and training to be equipped to provide support for a broader range of issues beyond suicidal behavior. Finally, ASIST trainings have been implemented in Santa Clara County to train crisis line staff. This type of training was found to be effective at improving caller outcomes in evaluations conducted in other communities,[122] and stakeholders in Santa Clara County could consider continuing to offer this type of training.

Suicide Postvention

The suicide of a youth can have a far reaching impact on others in the community, such as family members, friends, clinicians, teachers, first responders, schools, and coaches. There is evidence from studies in other communities demonstrating that individuals exposed to suicidal behavior and suicide survivors (defined as individuals bereaved by a suicide death) are at an increased risk for mental health distress and suicidal behavior.[32,33] Therefore, the use of short- and long-term suicide postvention programs and services are recommended to ensure that suicide survivors receive the support and care needed to mitigate the potential impact of the suicide death on mental health and wellbeing.[33] Postvention activities in school settings could also include implementing a public health response to suicide, which includes educational briefings, individual screening and referral, and crisis evaluation.[8]

The inventory of prevention programs and policies indicated that stakeholder groups in Santa Clara County have engaged in suicide postvention planning. These types of efforts could continue to be used as part of a comprehensive suicide prevention program; however, efforts may be needed to identify who these programs and policies reach and to determine whether additional groups could benefit from postvention services. For example, several of the postvention programs identified in the inventory are focused on school-based community members; therefore, efforts may be needed to identify postvention

programs for non-school-based populations, including survivors of young adult suicides and law enforcement or first responders. Additionally, evaluation of postvention efforts could help inform how these programs could be updated or revised. This includes assessing whether postvention programs are provided for a sufficient amount of time and are perceived as acceptable and helpful by those that use the services. Guidelines for how communities can respond to suicide are available through the National Action Alliance for Suicide Prevention,[123] and the Suicide Prevention Resource Center also provides resources about suicide postvention that can be implemented in the workplace, schools, and college campuses.[124]

Prevention of Other Forms of Violence

Risk factors for youth suicide identified from this investigation, such as mental health and substance use problems, exposure to violence, family conflict, and poor parent-child relationships, have also been shown in research and other communities to be risk factors for other forms of violence experienced by youth.[125] Other forms of violence, such as bullying (perpetration and victimization) and family violence, were also identified in this investigation as risk factors for nonfatal suicidal behavior. Research in other communities has identified that exposure to various forms of violence is a risk factor for suicidal behavior.[36] Therefore, as a way of maximizing prevention efforts, and as a part of a comprehensive and coordinated prevention approach, Santa Clara County could work toward reducing multiple forms of violence experienced by youth. This could be accomplished by focusing on shared risk and protective factors for multiple forms of violence, including suicidal behavior. CDC has developed multiple Technical Packages that include strategies and evidence based programs that could be used to prevent other forms of violence, including child abuse and neglect, sexual violence, and youth violence.[79,126,127]

Bullying was identified as a common risk factor for nonfatal suicidal behavior across all school districts examined in this investigation. In other communities, bullying (including perpetration and victimization) has been identified as a risk factor for suicidal behavior.[128-131] Therefore, evidence-based bullying prevention programs that target youth of all ages could be implemented as part of a comprehensive suicide prevention program. Similar to suicide prevention approaches, bullying prevention approaches that address multiple risk and protective factors and include multiple components are most likely to be effective. Additional information about bullying prevention, including evidence-based programs, are available at stopbullying.gov. This online resource includes details about strategies that have been effective, and also provides information about common strategies that have not been found to be effective in preventing bullying (e.g., zero tolerance policies, the use of conflict resolution and peer mediation, group treatment, and simple/short-term prevention programs).[132]

Reducing Access to Lethal Means for Youth At-Risk

Reducing access to lethal means among persons at-risk for suicide is an evidence-based approach to prevent suicide.[55,133,134] Medical examiner reports indicated that youth in Santa Clara County tended to die most often in a home setting, and the most common methods of suicide used in Santa Clara County within a home setting were hanging, firearm, and poisoning. Therefore, as part of a comprehensive and coordinated prevention approach, educating parents about suicide methods and ways to reduce access to lethal means in the home could be an effective strategy. For example, targeted education programs delivered in emergency departments to parents of youth presenting for suicidal behavior have shown some efficacy in improving safe storage of medications and firearms in the home.[104,135,136]

With regard to rail suicide, strategies that have some evidence of effectiveness include screen doors on platforms,[137] fencing on bridges over train tracks,[138] increased surveillance and staff training at

stations, and engineering designs on tracks to reduce the mortality of train strikes. Many of these strategies, however, have been tested for use in train stations only. There are currently limited evidence-based programs that have been found to be effective for preventing suicide deaths on at-grade crossings. It is encouraged that the use of strategies to prevent rail suicide are accompanied by rigorous evaluation to determine whether this type of approach is effective and meeting the goals of community stakeholders in Santa Clara County.

Data from this investigation indicated that several youth suicide decedents that used train as a method of suicide were living in residential treatment facilities near the train tracks. Vicinity to mental health facilities has been identified as a characteristic of suicide hotspots.[139-143] In other communities, risk factors for suicide by train among psychiatric inpatients include being on open wards, being in the early stages of admission (e.g., within the first 3 months of admission), and indications of more severe mental illness (e.g., taking multiple pharmaceutical drugs, poor response to therapy).[144] For rail suicide, community stakeholder could consider a population specific approach focused on safety planning in residential treatment facilities near the train tracks, with these strategies concomitant with safety planning related to other means of suicide, such as hanging and poisoning.

Finally, more than a quarter of suicide decedents in Santa Clara County that used train as the method of suicide had a current mental health problem, current depressed mood, a history of suicidal thoughts and attempts, and current or past treatment for mental health problems. Therefore, reducing access to lethal means related to trains could be focused on youth with existing mental health problems and/or a history of suicidal behavior.

Safe Messaging and Reporting About Suicide

There is extensive literature describing the negative effects media reporting (e.g., news articles) can have on suicidal behavior,[145-153] with youth being identified as particularly vulnerable to media

coverage in other communities.[50,148,154] Additionally, in other communities, media reporting has been implicated in the increased use of train as a method of suicide and as a risk factor for rail suicide.[155-157] Media reporting has been identified as potentially popularizing unusual or emerging methods of suicide.[145,146] A review of media articles discussing suicide in Santa Clara County, conducted as part of this investigation, identified unsafe media reporting and limited use of media reporting to educate the public about suicide prevention. This included deviations from accepted guidelines[24] and recommendations from the Centers for Disease Control and Prevention and partners.[158] Therefore, as part of a comprehensive and coordinated prevention approach, community stakeholders could focus on engaging local media reporters and news outlets to educate them about the importance of safe media reporting, especially for youth suicide prevention. This includes encouraging news outlets to follow safe reporting guidelines and recommendations.[24,149,158] There is promising evidence supporting this approach, with interventions focused on improving media coverage found to be effective at reducing railway suicide in Austria.[159-161] Additionally, local stakeholders could work to develop relationships between media outlets and suicide prevention agencies and organizations.

Ongoing engagement, education, and partnership with local media is encouraged. Analyses of the media scan data as part of this investigation indicated that there was some initial improvement in following certain guidelines, but that for some elements, improvement waned over time. Continued partnership with media and news outlets, and engagement that is not reactionary or in response to any individual death or individual media article, may be needed to avoid reemergence of poor reporting practices.

In addition to working with media and news partners to encourage engagement in safe reporting of suicide, individuals who talk with the media about suicide deaths may also need to focus on ensuring the information and messages they provide are safe. This would include communication staff, school and health department leadership, suicide prevention coordinators, stakeholder group leaders, law

enforcement, public safety personnel, and other individuals in leadership positions that talk and write about suicide in the community. The Suicide Prevention Resource Center and American Foundation for Suicide Prevention's "After a Suicide" Toolkit provides examples of key messages (see page 21) when talking with the media, as well as guidance for how to talk about suicide (see pages 24 and 25).[162] Additionally, the National Action Alliance for Suicide Prevention developed a "Framework for Successful Messaging" with extensive information about how to safely talk about and craft messages about suicide for use in a variety of settings, including presentations, public meetings, and media interviews.[163] Finally, guidelines were developed for how to engage in safe communication about suicide through social media formats.[164]

Other considerations may also be needed with regard to previous media coverage of suicide deaths in Santa Clara County. As part of the media scan conducted for this investigation, comments associated with news articles were also examined. The content of some of these comments were identified as being inconsistent with recommendations for safe reporting for suicide.[24,149,158] Community stakeholders may need to work with media partners to consider whether to allow for open comments sections on news articles. Finally, many news articles are now archived online, and easily accessible to anyone with an internet connection. Therefore, even if current media coverage is meeting safe reporting recommendations, previous unsafe reporting could still potentially exert influence. Community stakeholders and media partners are encouraged to work together to decide how to balance safe media reporting and access to news outlet information.

Strategic Planning for Suicide Prevention

The Suicide Prevention Resource Center describes the utility of strategic planning to help guide suicide prevention efforts.[38] This includes using data to inform which suicide prevention interventions, programs, policies and targets to engage in. Data from this investigation identified multiple factors

associated with nonfatal suicidal behavior, suggesting the need for a comprehensive and coordinated prevention approach. To help guide community stakeholders during the planning and implementation process of this type of coordinated approach, a strategic plan could be a useful tool.

At the county level, Santa Clara County has a strategic plan for suicide prevention, and current programs being implemented by the county are in line with this plan.[39] Annual reports are published publically that outline the activities engaged in, milestones, limitations, and next steps.[40] The Santa Clara County strategic approach, and regular sharing of progress, could be a model for local communities within the county. County-level staff may be able to provide local community stakeholders with technical assistance for how to develop a cohesive, data-driven, and feasible strategic plan that includes rigorous evaluation components. Additionally, they may be able to provide assistance about best practices on how to develop annual reports to publically share progress. Other resources on strategic prevention planning can be found through the Suicide Prevention Resource Center,[38] and the World Health Organization's Community Engagement Toolkit.[165]

To inform the development of new strategic plans, or to revise existing strategic plans, community stakeholders can utilize results of this investigation to help guide decision-making. For example, data from this investigation could help inform where focused attention on high-risk groups might be needed and, in some communities, may inform the development of prevention strategies for all ages given the suicide rates in Morgan Hill and Palo Alto were elevated for all residents (not just youth). Santa Clara County has multiple groups actively focused on suicide prevention, and these groups are encouraged to continue to bring together a variety of stakeholders (e.g., youth, families, schools, community members, clinicians, and media partners) to prioritize which risk and protective factors, and populations, to target based on information from this investigation. Decisions about which risk and protective factors to focus on will be shaped by available resources, goals and objectives of the community, and buy-in from all stakeholders, including youth. The Project Safety Net Community

survey conducted in Palo Alto indicated that current parents and students have different perceptions of the causes of suicide in Palo Alto, and have different perceptions about the best prevention strategies that could be used to prevent suicide in Palo Alto. While only reflective of some residents from one community within Santa Clara County, this finding underscores that not all community stakeholders will have the same perceptions about which risk and protective factors to target or which programs to implement. When considering implementation of a comprehensive and coordinated approach to suicide prevention, attention should be paid to the underlying beliefs of the target population for these efforts (e.g., youth). Additional outreach and education may be necessary to ensure that programs have the support of the target population, in order to be successful. A careful look at available data will be an important first step to increasing awareness of the many factors contributing to youth suicide in Santa Clara County and helping grow support for the use of multiple prevention strategies.

When developing long term goals as part of the strategic planning process, community stakeholders could consider use of "SMART" objectives for each long term goal. These are objectives that are **S**pecific, **M**easurable, **A**chievable, **R**ealistic, and **T**ime-bound.[166] By developing SMART objectives for each goal, this could help the community conceptualize what they are going to do, who will do the activity, when it will be completed, and how the community will know if there was success. Additionally, developing SMART objectives could assist community stakeholders planning evaluation efforts and determining benchmarks for program success. The development of long-term goals, and specific objectives, is an iterative process that is informed by the risk and protective factors identified in the community, and those that community stakeholders decide to target.

Selection and Implementation of Evidence-Based Programs

As part of the strategic planning process, stakeholders in Santa Clara County can utilize data on risk and protective factors identified in this report to help guide the selection of evidence-based practices

that could be used to develop a comprehensive and coordinated prevention approach. Santa Clara County stakeholders are already engaging in multiple suicide prevention efforts, with some of these identified in previous research as having evidence of efficacy to target factors associated with suicidal behavior. Therefore, community stakeholders are encouraged to continue to utilize evidence-based programs to target suicidal behavior, and risk and protective factors for suicidal behavior that were identified in this investigation. This includes carefully considering which program benefits have already been documented in their community before selecting new programs, or before determining which programs to continue, expand, or discontinue.

Multiple resources are available that could be used by community stakeholders to identify evidence-based programs to implement. These include, for example, CDC's Suicide Prevention Technical Package,[25] Blueprints for Healthy Youth and Development,[167] SAMHSA's National Registry of Evidence-Based Programs and Practices,[26] the Office of Juvenile Justice and Delinquency Prevention, and youth.gov.[168] CDC has additional Technical Packages that outline strategies, approaches, and example programs and policies that are based on the best available evidence for the prevention of sexual violence,[127] child abuse and neglect,[79] and youth violence[126] that might help address some risk and protective factors shared with suicide. Technical packages related to the prevention of intimate partner and teen dating violence is expected in 2017. Other sources of information about effective suicide prevention programs and interventions can be identified through literature reviews,[50,55,62,81,95,97,102,134,138,169] and resources are available through the Office of Adolescent Health,[170] and the Suicide Prevention Resources Center,[171] to help stakeholders select and implement evidence-based programs. Finally, community stakeholders could consider partnering with local public health practitioners that are familiar with health education, health promotion, and behavioral science to receive assistance in identifying, implementing, adapting, and evaluating evidence-based programs.

As part of the process of selecting and implementing evidence-based suicide prevention programs, community stakeholders may need to consider the racial and ethnic diversity of the target population. Overall, youth suicide decedents in Santa Clara County were ethnically and racially diverse. Therefore, suicide prevention efforts utilized in Santa Clara County at the county and local level may need to take into consideration linguistic, cultural, and generational elements into their implementation, adaptation, and evaluation. For example, when focusing on access to mental health care, stakeholders could consider clinician capacity, training, and experience working with multi-cultural clients. Resources are available to assist community stakeholders and clinicians consider how to adapt evidence-based treatment and programs to be culturally appropriate.[172]

Continuous Program Evaluation

Program evaluation is a central component to any suicide prevention program or policy because it will provide empirical evidence about whether a strategy is working to achieve community goals. Furthermore, program evaluation will help identify problems with program implementation and can indicate whether modifications are needed (including program discontinuation).[173] Multiple recommendations were made in this investigation about potential programs and strategies that could be utilized in Santa Clara County as part of a comprehensive and coordinated prevention approach. Many of these recommendations are consistent with efforts currently being implemented in Santa Clara County. Community stakeholders in Santa Clara County, however, are encouraged to monitor the reach and effectiveness of any programs implemented to ensure they are meeting their objectives. This includes building in continuous evaluation of all suicide prevention efforts being implemented at the county and local level.

For several of the suicide prevention efforts examined in the inventory of current Santa Clara approaches, the number of individuals reached is being monitored, and basic feedback is being obtained

about the acceptability and utility of existing suicide prevention programs (e.g., gatekeeper training, Crisis Call Center, Crisis Stabilization Unit, Sources of Strength). This is an important first step in ensuring prevention efforts implemented in Santa Clara County are achieving community goals. The community is encouraged to expand program evaluation to encompass both process and outcome measures. Process measures would allow community stakeholders to examine the effectiveness of program implementation, and this could provide information about why programs are not meeting objectives or goals. This includes providing insight into gaps in current programs in terms of reaching priority populations that may be at risk for suicide as discussed in this report. Poorly implemented programs can lead to failure of the program to achieve desired outcomes.[87] Understanding how programs are being implemented is as important as evaluating the efficacy of programs to change behavior and improve health.

Outcome measures would provide information about whether or not programs and policies are resulting in behavior change and are reducing fatal and nonfatal suicidal behavior. Evaluating suicide prevention programs and policies is complex, and there are unique challenges to evaluating these programs due to the low base rate of suicide and suicidal behavior. There are multiple resources available to community stakeholders to learn more about program evaluation. This includes the Suicide Prevention Resource Center,[173] RAND's "Suicide Prevention Program Evaluation Toolkit,"[174] World Health Organization's community engagement toolkit,[165] and CDC's Framework for Program Evaluation in Public Health.[175] Community stakeholders could also consider partnering with individuals or groups with public health evaluation expertise to help design evaluation plans for current, or new, prevention programs and policies developed. Finally, including a focus on continuous program evaluation at all stages of the strategic planning process could also help community stakeholders to develop realistic and measurable objectives that align with evidence-based prevention programs that will be implemented. This would also facilitate tracking of progress and success over time.

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Tables and Figures

Table 1. Characteristics of suicide deaths that occurred in Santa Clara County, CA, age 10–24, vital statistics, 2003–2015 (n=235).

Age (mean, SD, range)	20.2 (SD 2.9, Range 12–24)	
	n	**%**
Age category		
10 to 19	86	36.6
20 to 24	149	63.4
Biological sex		
Male	179	76.2
Female	56	23.8
Race/ethnicity		
White, Non-Hispanic	89	37.9
Black, Non-Hispanic	16	6.8
Asian/Pacific Islander, Non-Hispanic	58	24.7
Other, Non-Hispanic	--	--
Hispanic, all races	66	28.1

Case Definition: (1) County of death listed as Santa Clara County, (2) Decedent 10 to 24 years of age, (3) Manner of death listed as suicide. This case definition was used to understand the characteristics of youth that died *in* Santa Clara County regardless of where they were injured, or their place of residence.

-- Suppressed because cell size < 10

Table 2. City of residence and city of suicide-related injury of suicide deaths that occurred in Santa Clara County, CA, age 10–24, vital statistics.*†

	n	%
City of residence*		
San Jose	98	41.7
Other Santa Clara County City	46	19.6
Other Non-Santa Clara County City	38	16.2
Palo Alto	15	6.4
Sunnyvale	14	6.0
Santa Clara	12	5.1
Morgan Hill	11	4.7
Unknown	--	--
City of suicide-related injury†		
San Jose	89	43.8
Other Santa Clara County City	61	30.0
Palo Alto	21	10.3
Sunnyvale	17	8.4
Other Non-Santa Clara County City	13	6.4
Unknown	--	--

Case Definition: (1) County of death listed as Santa Clara County, (2) Decedent 10 to 24 years of age, (3) Manner of death listed as suicide. This case definition was used to understand the characteristics of youth that died *in* Santa Clara County regardless of where they were injured, or their place of residence.

*data available from 2003–2015

†data available from 2005–2015

-- Suppressed because cell size < 10

Table 3. Characteristics of suicide deaths that occurred in California among residents of Santa Clara County, CA, age 10–24, vital statistics, 2003–2015 (n=229).

Age (mean, SD, range)	20.4 (2.8) Range 13–24	
	n	**%**
Age category		
10 to 19	77	33.6
20 to 24	152	66.4
Biological sex		
Male	172	75.1
Female	57	24.9
Race/ethnicity		
White, Non-Hispanic	89	38.9
Black, Non-Hispanic	10	4.4
Asian/Pacific Islander, Non-Hispanic	62	27.1
Other, Non-Hispanic	--	--
Hispanic, any race	62	27.1

Case Definition: (1) County of residence listed as Santa Clara County, (2) Death occurred in state of California, (3) Decedent 10 to 24 years of age, (4) Manner of death listed as suicide.

-- Suppressed because cell size < 10

Table 4. City of residence and city of suicide-related injury of suicide deaths that occurred in California, among residents of Santa Clara County, age 10–24, vital statistics.*†

	n	%
City of residence*		
San Jose	113	49.3
Other Santa Clara County City	53	23.1
Palo Alto	19	8.3
Sunnyvale	17	7.4
Santa Clara	14	6.1
Morgan Hill	13	5.7
City of suicide-related injury†		
San Jose	76	39.6
Other Santa Clara County City	54	28.1
Other Non-Santa Clara County City	27	14.1
Palo Alto	17	8.9
Sunnyvale	16	8.3
Unknown	--	--

Case Definition: (1) County of residence listed as Santa Clara County, (2) Death occurred in state of California, (3) Decedent 10 to 24 years of age, (4) Manner of death listed as suicide.
*data available from 2003–2015
†data available from 2005–2015
-- Suppressed because cell size < 10

Table 5. Crude and predicted crude rate of suicide per 100,000, by city of residence, among youth age 10–24 that died in California and were residents of Santa Clara County, CA, vital statistics, 2003–2015 (n=229).

	Count	Crude Suicide Rate per 100,000	Predicted Crude Suicide Rate per 100,000	Standard Error	95% Confidence Interval		RSE
San Jose*	113	4.6	4.6	1.1	3.8	5.5	24
Morgan Hill	13	12.7	12.7	1.3	7.3	21.8	10
Palo Alto (ref)	19	14.1	14.1	1.3	9.0	22.2	9
Sunnyvale*	17	6.4	6.4	1.3	4.0	10.3	20
Santa Clara*	14	5.1	5.1	1.3	3.0	8.5	26

*Statistically significant difference with Palo Alto as the referent (ref) ($p<0.05$)
RSE: Relative standard error

Table 6. Crude and predicted crude rate of suicide per 100,000 among youth age 10–24 that died in California and were residents of Santa Clara County, CA, vital statistics and CDC WONDER, 2003–2014.

	Count	Crude Suicide Rate per 100,000	Predicted Crude Suicide Rate per 100,000	Standard Error	95% Confidence Interval		RSE
Palo Alto[‡]	17	13.7	13.7	1.3	8.5	22.1	9
Morgan Hill[‡]	12	12.7	12.7	1.3	7.2	22.3	11
State of California[*†‡]	5153	5.3	5.3	1.0	5.1	5.4	19
Santa Clara County[*†‡]	220	5.4	5.4	1.1	4.7	6.2	20
United States[*‡]	56993	7.4	7.4	1.0	7.4	7.5	14

[*]Statistically significant difference with county, state, and national rate, and Palo Alto as the referent ($p<0.05$)

[†]Statistically significant difference with county, state, and national rate, and Morgan Hill as the referent ($p<0.05$)

[‡] Data from CDC WONDER

[‡] Data from Santa Clara County vital statistics dataset

RSE: Relative standard error

Table 7. Crude and predicted crude rate of suicide of suicide per 100,000 of residents of Palo Alto, San Jose, and Morgan Hill who died in the state of California by age category, vital statistics, 2003–2015.

Palo Alto	Count	Crude Suicide Rate per 100,000	Predicted Crude Suicide Rate per 100,000	Standard Error	95% Confidence Interval		RSE
Age 10–24*	19	14.1	14.1	1.3	9.0	22.2	9
Age 25–39	11	7.0	7.0	1.4	3.9	12.6	19
Age 40–54	16	8.0	8.0	1.3	4.9	13.0	16
Age 55–69	26	19.0	19.0	1.2	12.9	27.9	6
70 and Over	22	20.9	20.9	1.2	13.7	31.7	6
Age 10 and Over*	94	12.8	12.8	1.1	10.5	15.7	9
San Jose	**Count**	**Crude Suicide Rate per 100,000**	**Predicted Crude Suicide Rate per 100,000**	**Standard Error**	**95% Confidence Interval**		**RSE**
Age 10–24	113	4.6	4.6	1.1	3.8	5.5	24
Age 25–39	217	7.5	7.5	1.1	6.6	8.6	14
Age 40–54	318	11.7	11.7	1.1	10.5	13.0	9
Age 55–69	187	11.4	11.4	1.1	9.9	13.1	9
70 and Over	109	13.0	13.0	1.1	10.8	15.7	8
Age 10 and Over	944	9.0	9.0	1.0	8.4	9.5	12
Morgan Hill	**Count**	**Crude Suicide Rate per 100,000**	**Predicted Crude Suicide Rate per 100,000**	**Standard Error**	**95% Confidence Interval**		**RSE**
Age 10–24‡	13	12.7	12.7	1.3	7.3	21.8	10
Age 25–39‡	14	15.3	15.3	1.3	9.1	25.9	9
Age 40–54	18	15.0	15.0	1.3	9.5	23.8	8
Age 55–69	--	9.7	9.7	1.5	4.6	20.3	15
70 and Over	--	10.0	10.0	1.8	3.2	31.1	18
Age 10 and Over	55	13.2	13.2	1.1	10.1	17.2	9

* Statistically significant difference between Palo Alto and San Jose compared by age category ($p<0.05$)

‡ Statistically significant difference between Morgan Hill and San Jose compared by age category ($p<0.05$)

-- Suppressed because cell size < 10

RSE: Relative standard error

Table 8. Characteristics of suicide deaths that occurred in Santa Clara County, CA, among residents of Santa Clara County, age 10–24, vital statistics , 2003–2015 (n=196).

Age (mean, SD, range)	20.3 (2.9, Range 13-24)	
	n	**%**
Age category		
10 to 19	73	37.2
20 to 24	123	62.8
Biological sex		
Male	147	75.0
Female	49	25.0
Race/ethnicity		
White, Non-Hispanic	75	38.3
Black, Non-Hispanic	--	--
Asian/Pacific Islander, Non-Hispanic	52	26.5
Other, Non-Hispanic	--	--
Hispanic, any race	56	28.6

Case Definition: (1) County of death listed as Santa Clara County, (2) County of residence listed as Santa Clara County, (3) Decedent 10 to 24 years of age, and (4) Manner of death listed as suicide.
-- Suppressed because cell size < 10

Table 9. City of residence and city of suicide-related injury of suicide deaths that occurred in Santa Clara County, CA, among residents of Santa Clara County, age 10–24, vital statistics.*†

	n	%
City of residence*		
San Jose	98	50.0
Other Santa Clara County City	46	23.5
Palo Alto	15	7.7
Sunnyvale	14	7.1
Santa Clara	12	6.1
Morgan Hill	11	5.6
City of suicide-related injury†		
San Jose	76	45.8
Other Santa Clara County City	54	32.5
Palo Alto	17	10.2
Sunnyvale	16	9.6
Other Non-Santa Clara County City	--	--
Unknown	--	--

Case Definition: (1) County of death listed as Santa Clara County, (2) County of residence listed as Santa Clara County, (3) Decedent 10 to 24 years of age, (4) Manner of death listed as suicide.
*data available from 2003–2015
†data available from 2005–2015
-- Suppressed because cell size < 10

Table 10. Characteristics of suicide deaths that occurred in Santa Clara County among residents of Santa Clara County, CA, age 10–24, medical examiner data, 2003–2015 (n=210).

	Total	
	n	**%**
Method		
Hanging, suffocation	100	47.6
Firearm	44	21.0
Poisoning	24	11.4
Train	22	10.5
Fall	10	4.8
Other	10	4.8
Type of location*		
House, apartment, garage	137	65.2
Railroad tracks	22	10.5
Other	21	10.0
Highway, freeway, street road, sidewalk, parking lot, public parking garage, bridge	15	7.1
Outdoor area (e.g., Natural area, park or playground, sports or athletic area)	15	7.1
Suicide at decedent's own home	134	63.8
Recent release from a facility	18	8.6
Emergency medical services on scene	164	78.1
Alcohol use suspected	35	16.7
Train behaviors†		
Walking	11	50.0
Stand, sit, or lay on tracks	13	59.1
Conductor took action (e.g., apply break, sound horn)	17	77.3

***The type of location is where the suicide occurred.

†Train behaviors were identified based on information contained in medical examiner reports

Table 11. Reported circumstances precipitating suicide deaths that occurred in Santa Clara County among residents of Santa Clara County, CA, age 10–24, medical examiner data, 2003–2015.

	Santa Clara County (n=194)	
	n	**%**
Mental health and alcohol/substance use		
Current mental health problem	92	47.4
Current depressed mood	63	32.5
Current treatment for mental illness	59	30.4
Ever treated for mental problem	83	42.8
Other substance problem	38	19.6
Alcohol dependence	22	11.3
Suicide behavior		
Suicide note	82	42.3
Suicide thought history	72	37.1
Suicide intent disclosed	57	29.4
Suicide attempt history	58	29.9
Other precipitating circumstances		
Recent crisis	102	52.6
Intimate partner problems	53	27.3
School problem	40	20.6
Argument	41	21.1
Family stressor	36	18.6
Recent criminal legal problem	15	7.7
Other relationship problem	18	9.3

Note: Percentages do not add up to 100 because multiple circumstances could be coded for each decedent

Table 12. Reported circumstances precipitating suicide deaths that occurred in Santa Clara County among residents of Santa Clara County, by age category, age 10–24, medical examiner data, 2003–2015.

	Santa Clara County Adolescents Age 10–19		Santa Clara County Young Adults Age 20–24	
	n	**%**	**n**	**%**
Mental health and alcohol/substance use				
Current mental health problem	37	48.7	55	46.6
Current depressed mood	30	39.5	33	28.0
Current treatment for mental illness*	30	39.5	29	24.6
Ever treated for mental problem*	42	55.3	41	34.8
Other substance problem	13	17.1	25	21.2
Alcohol dependence*	--	--	18	15.3
Suicide behavior				
Suicide note	37	48.7	45	38.1
Suicide thought history*	36	47.4	36	30.5
Suicide intent disclosed*	29	38.2	28	23.7
Suicide attempt history*	30	39.5	28	23.7
Other precipitating circumstances				
Recent crisis*	48	63.2	54	45.8
Argument	18	23.7	23	19.5
Family stressor*	21	27.6	15	12.7
Intimate partner problems	25	32.9	28	23.7
School problem*	23	30.3	17	14.4
Other relationship problem	--	--	11	9.3

Note: Percentages do not add up to 100 because multiple circumstances could be coded for each decedent.

-- Suppressed because cell size < 10

*Statistically significant difference ($p<0.05$)

Table 13. Reported circumstances precipitating suicide deaths that occurred in Santa Clara County among residents of Santa Clara County, by biological sex, age 10–24, medical examiner data, 2003–2015.

	Santa Clara County Male		Santa Clara County Female	
	n	**%**	**n**	**%**
Mental health and alcohol/substance use				
Current mental health problem*	55	38.7	37	71.2
Current depressed mood	47	33.1	16	30.8
Current treatment for mental illness*	37	26.1	22	42.3
Ever treated for mental problem*	53	37.3	30	57.7
Other substance problem	29	20.4	--	--
Alcohol dependence	16	11.3	--	--
Suicide behavior				
Suicide note	58	40.9	24	46.2
Suicide thought history	51	35.9	21	40.4
Suicide intent disclosed	43	30.3	14	26.9
Suicide attempt history*	35	24.7	23	44.2
Other precipitating circumstances				
Recent crisis	75	52.8	27	51.9
Argument	32	22.5	--	--
Family stressor*	21	14.8	15	28.9
Intimate partner problems	39	27.5	14	26.9
School problem	30	21.1	--	--
Other relationship problem	11	7.8	--	--

Note: Percentages do not add up to 100 because multiple circumstances could be coded for each decedent.

-- Suppressed because cell size < 10

* Statistically significant difference ($p<0.05$)

Table 14. Comparison of reported circumstances precipitating suicide deaths that occurred in Santa Clara County among residents of Santa Clara County, to suicide deaths among residents of comparison counties, age 10–24, medical examiner and National Violent Death Reporting System data, 2003–2013.

	Santa Clara County Age 10–24 (n=178)		Comparison Counties Age 10–24 (n=430)	
	n	%	n	%
Mental health and alcohol/substance use				
Current mental health problem	78	47.3	226	56.4
Current depressed mood	55	33.3	141	35.2
Current treatment for mental illness	49	29.7	152	37.9
Ever treated for mental problem*	73	44.2	219	54.6
Other substance problem	34	20.6	93	23.2
Alcohol dependence	17	10.3	43	10.7
Suicide behavior				
Suicide note	68	41.2	148	36.9
Suicide intent disclosed	48	29.1	106	26.4
Suicide attempt history	50	30.3	111	27.7
Other precipitating circumstances				
Recent crisis*	88	53.3	86	21.5
Intimate partner problems	49	29.7	109	27.2
School problem	35	21.2	64	16.0
Other relationship problem	14	8.5	64	16.0

Note: Percentages do not add up to 100 because multiple circumstances could be coded for each decedent. Santa Clara County data are based on information abstracted from medical examiner reports for suicides that occurred in Santa Clara County between 2003 and 2013. Comparison counties' data are from a pooled group of high income counties participating in the National Violent Death Reporting System between 2003 and 2013. For more information about the comparison counties please see the National Violent Death Reporting System data sources portion of this Final Report.

*Statistically significant difference ($p<0.05$)

Table 15. Comparison of reported circumstances precipitating suicide deaths that occurred in Santa Clara County among residents of Santa Clara County, to suicide deaths among residents of comparison counties, ages 10–19, medical examiner and National Violent Death Reporting System data, 2003–2013.

	Santa Clara County Adolescents Age 10–19		Comparison Counties Adolescents Age 10–19	
	n	**%**	**n**	**%**
Mental health and alcohol/substance Use				
Current mental health problem	32	47.8	92	54.8
Current depressed mood	25	37.3	62	36.9
Current treatment for mental illness	25	37.3	71	42.3
Ever treated for mental problem	37	55.2	90	53.6
Other substance problem	12	17.9	31	18.5
Alcohol dependence	--	--	11	6.6
Suicide behavior				
Suicide note	31	46.3	64	38.1
Suicide intent disclosed	26	38.8	54	32.1
Suicide attempt history*	27	40.3	38	22.6
Other precipitating circumstances				
Recent crisis*	45	67.2	37	22.0
Intimate partner problems	24	35.8	38	22.6
School problem	21	31.3	50	29.8
Other relationship problem	--	--	36	21.4

Note: Percentages do not add up to 100 because multiple circumstances could be coded for each decedent. Santa Clara County data are based on information abstracted from medical examiner reports for suicides that occurred in Santa Clara County between 2003 and 2013. Comparison counties' data are from a pooled group of high income counties participating in the National Violent Death Reporting System between 2003 and 2013. For more information about the comparison counties please see the National Violent Death Reporting System data sources portion of this Final Report.

-- Suppressed because cell size < 10

* Statistically significant difference ($p<0.05$)

Table 16. Comparison of reported circumstances precipitating suicide deaths that occurred in Santa Clara County among residents of Santa Clara County, to suicide deaths among residents of comparison counties, ages 20–24, medical examiner and National Violent Death Reporting System data, 2003–2013.

	Santa Clara County Young Adults Age 20–24		Comparison Counties Young Adults Age 20–24	
	n	%	n	%
Mental health and alcohol/substance use				
Current mental health problem	46	46.9	134	57.5
Current depressed mood	30	30.6	79	33.9
Current treatment for mental illness	24	24.5	81	34.8
Ever treated for mental problem*	36	36.7	129	55.4
Other substance problem	22	22.5	62	26.6
Alcohol dependence	14	14.3	32	13.7
Suicide behavior				
Suicide note	37	37.8	84	36.1
Suicide intent disclosed	22	22.5	52	22.3
Suicide attempt history	23	23.5	73	31.3
Other precipitating circumstances				
Recent crisis*	43	43.9	49	21.0
Intimate partner problems	25	25.5	71	30.5
School problem*	14	14.3	14	6.0
Other relationship problem	--	--	11	4.7

Note: Percentages do not add up to 100 because multiple circumstances could be coded for each decedent. Santa Clara County data are based on information abstracted from medical examiner reports for suicides that occurred in Santa Clara County between 2003 and 2013. Comparison counties' data are from a pooled group of high income counties participating in the National Violent Death Reporting System between 2003 and 2013. For more information about the comparison counties please see the National Violent Death Reporting System data sources portion of this Final Report.

-- Suppressed because cell size < 10

* Statistically significant difference ($p<0.05$)

Table 17. Comparison of reported circumstances precipitating suicide deaths that occurred in Santa Clara County among residents of Santa Clara County, to suicide deaths among residents of comparison counties, male youth age 10–24, medical examiner and National Violent Death Reporting System data, 2003–2013.

	Santa Clara County Male		Comparison Counties Male	
	n	%	n	%
Mental Health and Alcohol/Substance Use				
Current mental health problem	45	37.8	163	53.4
Current depressed mood	40	33.6	103	33.8
Current treatment for mental illness	31	26.1	104	34.1
Ever treated for mental problem	47	39.5	154	50.5
Other substance problem	26	21.9	73	23.9
Alcohol dependence	12	10.1	34	11.2
Suicide Behavior				
Suicide note	47	39.5	107	35.1
Suicide intent disclosed	37	31.1	80	26.2
Suicide attempt history	31	26.1	69	22.6
Other Precipitating Circumstances				
Recent crisis*	64	53.8	69	22.6
Intimate partner problems	35	29.4	80	26.2
School problem	25	21.0	51	16.7
Other relationship problem	--	--	33	10.8

Note: Percentages do not add up to 100 because multiple circumstances could be coded for each decedent. Santa Clara County data are based on information abstracted from medical examiner reports for suicides that occurred in Santa Clara County between 2003 and 2013. Comparison counties' data are from a pooled group of high income counties participating in the National Violent Death Reporting System between 2003 and 2013. For more information about the comparison counties please see the National Violent Death Reporting System data sources portion of this Final Report.

-- Suppressed because cell size < 10

* Statistically significant difference ($p<0.05$)

Table 18. Comparison of reported circumstances precipitating suicide deaths that occurred in Santa Clara County among residents of Santa Clara County, to suicide deaths among residents of comparison counties, female youth age 10–24, medical examiner and National Violent Death Reporting System data, 2003–2013.

	Santa Clara County Female		Comparison Counties Female	
	n	%	n	%
Mental health and alcohol/substance use				
Current mental health problem	33	71.7	63	65.6
Current depressed mood	15	32.6	38	39.6
Current treatment for mental illness	18	39.1	48	50.0
Ever treated for mental problem	26	56.5	65	67.7
Other substance problem	--	--	20	20.8
Alcohol dependence	--	--	--	--
Suicide behavior				
Suicide note	21	45.7	41	42.7
Suicide intent disclosed	11	23.9	26	27.1
Suicide attempt history	19	41.3	42	43.8
Other precipitating circumstances				
Recent crisis*	24	52.2	17	17.7
Intimate partner problems	14	30.4	29	30.2
School problem	--	--	13	13.5
Other relationship problem	--	--	14	14.6

Note: Percentages do not add up to 100 because multiple circumstances could be coded for each decedent. Santa Clara County data are based on information abstracted from medical examiner reports for suicides that occurred in Santa Clara County between 2003 and 2013. Comparison counties' data are from a pooled group of high income counties participating in the National Violent Death Reporting System between 2003 and 2013. For more information about the comparison counties please see the National Violent Death Reporting System data sources portion of this Final Report.

-- Suppressed because cell size < 10

* Statistically significant difference ($p<0.05$)

Table 19. Reported circumstances precipitating suicide deaths that occurred in Santa Clara County among residents of Santa Clara County, by city of residence, age 10–24, medical examiner data, 2003–2015.

	Morgan Hill	Palo Alto	San Jose	Santa Clara	Sunnyvale	Other Santa-Clara County City
Mental health and alcohol/substance use						
Current mental health problem	x	x	x		x	x
Current depressed mood	x	x	x	x	x	x
Current treatment for mental illness	x	x			x	x
Ever treated for mental problem	x	x	x		x	x
Suicide behavior						
Suicide note	x	x	x	x	x	x
Suicide intent disclosed	x	x	x		x	
Suicide thought history			x	x	x	x
Suicide attempt history	x	x	x		x	
Other precipitating circumstances						
Recent crisis	x	x	x	x	x	x
Intimate partner problems	x		x	x	x	
Argument	x		x			
School problem	x	x			x	x
Family relationship problem	x					

Note: An x indicates that ≥25% of suicide decedents had the precipitating circumstance indicated in their medical examiner report.

Table 20. Reported circumstances precipitating suicide deaths that occurred in Santa Clara County among residents of Santa Clara County, by method, age 10–24, medical examiner data, 2003–2015.

	Hanging	Firearm	Poisoning	Train	Fall
Mental health and alcohol/substance use					
Current mental health problem	x	x	x	x	x
Current depressed mood	x	x	x	x	x
Current treatment for mental illness	x		x	x	x
Ever treated for mental problem	x	x	x	x	x
Suicide behavior					
Suicide note	x	x	x	x	x
Suicide intent disclosed		x	x	x	x
Suicide thought history	x	x	x	x	x
Suicide attempt history	x		x	x	x
Other precipitating circumstances					
Recent crisis	x	x	x	x	x
Intimate partner problems	x	x	x		
Argument	x				
School problem			x	x	

Note: An x indicates that ≥25% of suicide decedents had the precipitating circumstance indicated in their medical examiner report.

Table 21. Characteristics of suicide-related Emergency Department visits, by visit type, Santa Clara County residents, ages 10–24, Emergency Department Data, 2005–2014

	Suicidal Ideation, no Attempt* (n=3,051)		Attempt,* no Suicidal Ideation (n=3,915)		Attempt* and Suicidal Ideation (n=507)		Total (n=7,473)	
	%	(n)	%	(n)	%	(n)	%	(n)
Sex								
Male	39	1,197	32	1,257	25	126	35	2,580
Female	61	1,854	68	2,658	75	381	65	4,893
Age group								
10-14	18	562	15	592	18	91	17	1,245
15-19	47	1,440	52	2,031	58	294	50	3,765
20-24	34	1,049	33	1,292	24	122	33	2,463
Race/Ethnicity								
White, non-Hispanic	46	1,408	40	1,577	44	222	43	3,207
Black, non-Hispanic	5	151	5	187	3	15	5	353
Asian/Pacific Islander, non-Hispanic	12	379	11	443	13	67	12	889
Other, non-Hispanic	5	142	4	167	7	36	5	345
Hispanic, any race	29	889	36	1,400	32	160	33	2,449
Disposition								
Discharged home	24	717	27	1,051	19	98	25	1,866
Discharged/transferred to short-term general hospital for inpatient care	9	273	7	292	16	80	9	645
Discharged/transferred to a designated cancer center or children's hospital	1	35	--	--	--	--	1	67
Discharged/transferred to court/law enforcement	--	--	--	--	--	--	<1	17
Discharged/transferred to psychiatric hospital or psychiatric unit of hospital	61	1,855	56	2,204	61	311	58	4,370
Discharged/transferred to other facility	4	113	--	--	--	--	3	212

*Visits for suicide attempt also include those for non-suicidal self-injury
-- indicates cell suppressed due to less than 15 observations

Table 22. Logistic regression modeling of the association between patient characteristics and transfer to psychiatric care, Santa Clara County residents, ages 10–24, Emergency Department Data, 2005–2014

	Transfer to Psychiatric Care		
	OR	**95% CI**	
Sex			
Male	1.02	0.93	1.13
Female	REF		
Age group			
10-14	0.84	0.73	0.97
15-19	0.99	0.89	1.10
20-24	REF		
Race/Ethnicity			
White, non-Hispanic	REF		
Black, non-Hispanic	1.01	0.81	1.27
Asian/Pacific Islander, non-Hispanic	0.98	0.85	1.14
Other, non-Hispanic	0.51	0.40	0.63
Hispanic, any race	1.16	1.04	1.30
Visit reason			
Suicide attempt/self-injury			
Yes	0.85	0.77	0.93
No	REF		
Suicidal ideation			
Yes	1.21	1.10	1.32
No	REF		

OR=Odds Ratio; CI=Confidence Interval; REF=Reference Category

Table 23. Emergency Department suicide attempt/self-injury or suicidal ideation visit patient characteristics, youth age 10–24, Palo Alto/Stanford residents compared with residents of other communities in Santa Clara County (SCC), 2012–2014

	Suicide Attempt/Self-Injury (n=1,613)				Suicidal Ideation (n=2,027)				Total (n=3,311)			
	Palo Alto/Stanford		Rest of SCC		Palo Alto/Stanford		Rest of SCC		Palo Alto/Stanford		Rest of SCC	
	%	n	%	n	%	N	%	n	%	n	%	n
Sex												
Male	27	29	29	434	43	97 *	35	625 *	38	121	33	988
Female	73	78	71	1,072	57	128 *	65	1,177 *	62	196	67	2,006
Age group												
10-14	--	--	20	296	20	45	20	357	18	58	20	585
15-19	64	68 *	52	781 *	51	115	47	846	55	174 *	48	1,448 *
20-24	22	24	28	429	29	65	33	599	27	85	32	961
Race/Ethnicity												
White, non-Hispanic	39	42	39	585	44	100	44	792	42	133	41	1,238
Black, non-Hispanic	--	--	4	59	11	24 *	5	88 *	9	30 *	5	137 *
Asian/Pacific Islander, non-Hispanic	--	--	14	210	16	35	14	252	13	42	14	413
Other, non-Hispanic	--	--	5	76	8	17	6	103	7	23	5	157
Hispanic, any race	36	38	36	536	20	44 *	30	544 *	25	79 *	33	991 *
Visit reason†												
Suicide attempt/self-injury									34	107 *	50	1,506 *
Suicidal ideation									71	225 *	60	1,802 *

*Indicates statistically significantly different estimates, comparing Palo Alto/Stanford vs. rest of SCC

†Visit could be coded as for suicide attempt alone, suicidal ideation alone, or both - these categories not mutually exclusive

-- indicates cell suppressed due to less than 15 observations

Patients were assigned Palo Alto/Stanford residence based on zip codes (94301, 94302, 94303, 94304, 94306, 94309, 94305) and therefore may not be an exact match for those cities.

Table 24. Emergency Department suicide attempt/self-injury or suicidal ideation visit patient characteristics, youth age 10–24, Morgan Hill residents compared with residents of other communities in Santa Clara County (SCC), 2012–2014

	Suicide Attempt/Self-Injury (n=1,613)				Suicidal Ideation (n=2,027)				Total (n=3,311)			
	Morgan Hill		Rest of SCC		Morgan Hill		Rest of SCC		Morgan Hill		Rest of SCC	
	%	n	%	n	%	n	%	n	%	n	%	n
Sex												
Male	--	--	29	451	43	24	35	698	35	34	33	1,075
Female	79	44	71	1,106	57	32	65	1,273	65	62	67	2,140
Age group												
10-14	--	--	19	297	--	--	20	396	19	18	19	625
15-19	63	35	52	814	64	36 *	47	925 *	60	58 *	49	1,564 *
20-24	--	--	29	446	--	--	33	650	21	20 *	32	1,026 *
Race/Ethnicity												
White, non-Hispanic	73	41 *	38	586 *	71	40 *	43	852 *	70	67 *	41	1,304 *
Black, non-Hispanic	--	--	4	65	--	--	6	112	--	--	5	166
Asian/Pacific Islander, non-Hispanic	--	--	14	216	--	--	14	284	--	--	14	450
Other, non-Hispanic	--	--	5	83	--	--	6	119	--	--	6	179
Hispanic, any race	--	--	36	562	--	--	29	576	23	22 *	33	1,048 *
Visit reason†												
Suicide attempt/self-injury									58	56	48	1,557
Suicidal ideation									58	56	61	1,971

*Indicates statistically significantly different estimates, comparing Morgan Hill vs. rest of SCC
†Visit could be coded as for suicide attempt alone, suicidal ideation alone, or both - these categories not mutually exclusive
-- indicates cell suppressed due to less than 15 observations
Patients were assigned Morgan Hill residence based on zip codes (95037, 95038) and therefore may not be an exact match for those cities.

Table 25. Characteristics of suicide-related hospitalizations, by visit type, Santa Clara, CA residents ages 10–24, Patient Discharge Data, 2003–2014, Santa Clara County, CA.

	Suicidal Ideation, no attempt* (n=4,514)		Attempt,* no Suicidal Ideation (n=1,787)		Attempt* and Suicidal Ideation (n=402)		Total (n=6,703)	
	%	n	%	n	%	n	%	n
Sex								
Male	39	1,742	31	554	25	100	36	2,396
Female	61	2,771	69	1233	75	302	64	4,306
Age group								
10–14	19	861	11	197	21	86	17	1,144
15–19	50	2,239	48	850	50	201	49	3,290
20–24	31	1,414	41	740	29	115	29	115
Race/Ethnicity								
White, non-Hispanic	44	1,981	47	837	41	163	44	2,981
Black, non-Hispanic	4	193	--	--	--	--	4	282
Asian/Pacific Islander, non-Hispanic	14	632	16	278	14	57	14	267
Other, non-Hispanic	3	132	4	63	5	21	3	216
Hispanic, any race	26	1,158	25	450	26	105	26	1,713
Disposition								
Discharged home	86	3,863	55	975	74	299	77	5,137
Other care within the admitting hospital	1	30	12	208	8	31	4	269
Acute care at another hospital	--	--	6	112	--	--	3	141
Other care not skilled nursing/immediate care at another hospital	2	68	19	342	8	34	7	444
Residential care facility	8	383	--	--	--	--	7	443
Other	3	146	--	--	4	18	4	256
Length of stay								
1 day or less	6	272	42	748	21	83	16	1,103
2–6 days	63	2,844	46	824	60	241	58	3,909
7 days or more	31	1,398	12	215	19	78	25	1,691
Admission to out-of-county facility	73	3,316	14	246	50	200	56	3,762

*Hospitalizations for suicide attempt also include those for non-suicidal self-injury
-- indicates cell suppressed due to less than 15 observations

Table 26. Bivariate association of demographic characteristics with out-of-county hospitalization, Santa Clara County residents ages 10–24, Patient Discharge Data, 2003–2014, Santa Clara County, CA.

	Hospitalization outside of Santa Clara County, CA		
	OR	**95% CI**	
Sex			
Male	1.02	0.92	1.13
Female	REF		
Age group			
10–14	9.54	8.01	11.37
15–19	3.53	3.16	3.95
20–24	REF		
Race/Ethnicity			
White, non-Hispanic	REF		
Black, non-Hispanic	0.71	0.56	0.91
Asian/Pacific Islander, non-Hispanic	1.09	0.94	1.26
Other, non-Hispanic	0.43	0.32	0.57
Hispanic, any race	1.24	1.10	1.40
Admission reason			
Suicide attempt/self-injury	0.09	0.08	0.10
Suicidal ideation	15.73	13.57	18.24

OR=Odds Ratio; CI=Confidence Interval; REF=Reference Category

Table 27. Logistic regression modeling the relationship between perceptions of self and suicide attempt among high school students in Palo Alto Unified School District, Developmental Assets Survey, 2010, Santa Clara County, CA.

	Total n	Total %	OR	95% CI	
Sometimes I feel like my life has no purpose	709	26.5	4.96*	3.72	6.60
I feel I do not have much to be proud of	552	20.7	3.31*	2.48	4.40
At times, I think I am no good at all	1036	38.8	3.19*	2.39	4.26
I have little control over things that happen in my life	497	18.6	2.94*	2.19	3.94
I like to do exciting things, even if they are dangerous	1180	44.2	1.59*	1.20	2.10
When I am an adult, I'm sure I will have a good life	1861	69.6	0.45*	0.34	0.60
When things don't go well for me, I am good at finding a way to make things better	1624	60.7	0.36*	0.27	0.48
On the whole, I like myself	2123	79.3	0.27*	0.21	0.36
All in all, I am glad I am me	2111	78.9	0.27*	0.20	0.35

* Statistically significant difference ($p<0.05$)
OR=Odds Ratio; CI=Confidence Interval

Table 28. Logistic regression modeling the relationship between delinquent behavior, sexual activity, and suicide attempt among high school students in Palo Alto Unified School District, Developmental Assets Survey, 2010, Santa Clara County, CA.

	Total n	Total %	OR	95% CI	
Have you ever had sexual intercourse, lifetime	376	14.1	3.75*	2.77	5.08
Damaged property just for fun, past 12 months	317	11.9	3.17*	2.29	4.38
Stolen something from a store, past 12 months	479	18.0	2.94*	2.19	3.95
Gotten into trouble with the police, past 12 months	331	12.4	2.68*	1.93	3.73

* Statistically significant difference ($p<0.05$)
OR=Odds Ratio; CI=Confidence Interval

Table 29. Logistic regression modeling the relationship between alcohol/tobacco/marijuana use, depressive symptoms, disordered eating and suicide attempt among high school students in Palo Alto Unified School District, Developmental Assets Survey, 2010, Santa Clara County, CA.

	Total n	Total %	OR	95% CI	
Ever cut down on how much you ate and lost so much weight that other people became worried, lifetime	224	8.4	5.01*	3.57	7.04
Ever feel sad or depressed during, past month	2136	79.8	4.71*	2.61	8.49
Ever smoked cigarettes, lifetime	246	9.2	3.51*	2.49	4.97
Ever having had more than just a few sips of alcohol, lifetime	1460	54.6	2.71*	1.97	3.72
Ever used marijuana, lifetime	542	20.4	2.45*	1.82	3.29

* Statistically significant difference ($p<0.05$)
OR=Odds Ratio; CI=Confidence Interval

Table 30. Logistic regression modeling the relationship between violence perpetration/victimization and suicide attempt among high school students in Palo Alto Unified School District, Developmental Assets Survey, 2010, Santa Clara County, CA.

	Total n	Total %	OR	95% CI	
Ever been the victim of physical violence where someone caused you physical pain or injury, past 2-years	547	20.5	3.73*	2.80	4.97
Hit or beat up someone, past 12 months	436	16.3	2.92*	2.16	3.96
Ever threatened to physically hurt someone, lifetime	441	16.5	2.77*	2.04	3.75

* Statistically significant difference ($p<0.05$)
OR=Odds Ratio; CI=Confidence Interval

Table 31. Logistic regression modeling the relationship between family related variables and suicide attempt among high school students in Palo Alto Unified School District, Developmental Assets Survey, 2010, Santa Clara County, CA.

	Total n	Total %	OR	95% CI	
Have you ever been physically harmed by someone in your family or someone living with you?	456	17.1	5.04*	3.77	6.74
Afraid of getting hurt by someone in your home	286	10.7	6.33*	4.65	8.64
Parents help you with your school work	662	24.7	0.90	0.65	1.25
Parents ask you about homework	975	36.4	0.76	0.57	1.00
Parents go to meetings or events at your school	1318	49.2	0.69*	0.52	0.91
Parents talk to you about what you are doing in school	877	32.7	0.50*	0.38	0.66
I have a lot of good conversations with my parents	1659	62.2	0.46*	0.34	0.60
If had an important concern about drugs, alcohol, would talk to parents	1405	52.5	0.40*	0.29	0.54
My parents often tell me they love me	2072	77.3	0.36*	0.27	0.47
My parents push me to be the best I can be	2276	85.0	0.34*	0.25	0.46
I get along well with my parents	1963	73.4	0.31*	0.23	0.41
In my family, I feel useful and important	1830	68.4	0.27*	0.20	0.36
My parents give me help and support when I need it	2114	79.0	0.24*	0.18	0.32

* Statistically significant difference ($p<0.05$)
OR=Odds Ratio; CI=Confidence Interval

Table 32. Logistic regression modeling the relationship between neighborhood related variables and suicide attempt among high school students in Palo Alto Unified School District, Developmental Assets Survey, 2010, Santa Clara County, CA.

	Total n	Total %	OR	95% CI	
Adults in my town or city don't care about people my age	480	18.0	3.08*	2.30	4.14
Ever afraid of walking around your neighborhood	807	30.2	1.80*	1.36	2.39
In my neighborhood, there are a lot of people who care about me	929	34.7	0.75	0.56	1.02
If one of my neighbors saw me do something wrong, they would tell my parent(s)	1025	38.3	0.68*	0.51	0.92
I'm given lots of chances to help make my town a better place in which to live	1213	45.3	0.53*	0.40	0.72
Adults in my town or city make me feel important	1043	39.0	0.45*	0.33	0.63
Adults in my town or city listen to what I have to say	1070	40.1	0.43*	0.31	0.59
In my town or city, I feel like I matter to people	1085	40.9	0.35*	0.25	0.49

* Statistically significant difference ($p<0.05$)
OR=Odds Ratio; CI=Confidence Interval

Table 33. Logistic regression modeling the relationship between school-related variables and suicide attempt among high school students in Palo Alto Unified School District, Developmental Assets Survey, 2010, Santa Clara County, CA.

	Total n	Total %	OR	95% CI	
Ever feel afraid of getting hurt by someone at your school	454	17.0	2.66*	1.97	3.60
Teachers at school push me to be the best I can be	1482	55.3	0.58*	0.44	0.77
My teachers really care about me	1471	54.9	0.57*	0.43	0.75
I get a lot of encouragement at my school	1402	52.4	0.44*	0.33	0.59
Students in my school care about me	1700	63.7	0.37*	0.28	0.49

* Statistically significant difference ($p<0.05$)
OR=Odds Ratio; CI=Confidence Interval

Table 34. School districts assessing past year suicidal ideation among public high school students, California Healthy Kids Survey, Santa Clara County, CA.

School District	School Year					
	2005-2006	2007-2008	2009-2010	2010-2011	2011-2012	2013-2014
Campbell Union	X	X	X			
East Side Union				X		X
Fremont Union	X	X	X			
Gilroy Unified	X	X	X		X	X
Los-Gatos Saratoga Union	X	X	X			
Milpitas Unified			X		X	
Mountain View-Los Altos Union	X	X	X			X
Morgan Hill Unified		X				X
Palo Alto Unified			X		X	X
Santa Clara Unified	X	X	X		X	X
San Jose Unified			X			

Table 35. Weighted prevalence of past year suicidal ideation among public high school students, California Healthy Kids Survey, Santa Clara County, CA and the Youth Risk Behavior Survey.

	Santa Clara County Past Year Suicidal Ideation		YRBS Past Year Suicidal Ideation†
School Year	**n**	**Weighted %**	**%**
2005–2006[1]	1940	17.1	16.9
2007–2008[2]	3676	15.3	14.5
2009–2010[3]	4217	16.6	13.8
2011–2012[4]	2133	18.6	15.8
2013–2014[5]	2846	18.3	17.0

Note: Different school districts assessed past year suicidal ideation in each survey administration of CHKS, therefore comparisons of weighted prevalence across time points should be made with caution.

[1] Six school districts participated: Campbell Union, Fremont Union, Gilroy Unified, Los-Gatos Saratoga Union, Mountain View-Los Altos Union, Santa Clara Unified

[2] Seven school districts: Campbell Union, Fremont Union, Gilroy Unified, Los-Gatos Saratoga Union, Mountain View-Los Altos Union, Morgan Hill Unified, Santa Clara Unified

[3] Nine school districts: Campbell Union, Fremont Union, Gilroy Unified, Los-Gatos Saratoga Union, Milpitas Unified, Mountain View-Los Altos Union, Palo Alto Unified, Santa Clara Unified, San Jose Unified

[4] Four school districts: Gilroy Unified, Milpitas Unified, Palo Alto Unified, Santa Clara Unified.

[5] Six school districts participated: East Side Union, Gilroy Unified, Mountain View-Los Altos Union, Morgan Hill Unified, Palo Alto Unified, Santa Clara Unified.

†Centers for Disease Control and Prevention. *Trends in the Prevalence of Suicide–Related Behavior National YRBS: 1991—2013*.

Table 36. Bivariate logistic regression modeling the relationship between risk and protective factors and past year suicidal ideation and suicide attempt, among public high school students, California Healthy Kids Survey, 2013–2014, Santa Clara County, CA.

	Suicidal Ideation 2013–2014[1] (n = 2846)			Suicide Attempt 2013–2014[2] (n = 1093)		
	OR	**95% CI**		**OR**	**95% CI**	
Lifetime alcohol/substance use						
Drank alcohol	1.98*	1.81	2.16	2.68*	2.33	3.08
Use illicit drugs (marijuana, cocaine, ecstasy)	1.87*	1.70	2.06	3.10*	2.69	3.58
Use pain medication	2.63*	2.33	2.98	3.90*	3.32	4.59
Smoked a cigarette	2.10*	1.86	2.37	3.39*	2.88	3.98
Gender						
Female	2.17*	1.97	2.38	1.91*	1.64	2.21
Male	REF			REF		
Sexual Orientation						
Lesbian, gay, bisexual	4.43*	3.83	5.12	5.18*	4.29	6.25
Depressive symptoms						
Feeling sad or hopeless almost every day for two weeks or more, past year	11.31*	10.20	12.55	8.03*	6.83	9.44
Relationship with school						
Teacher-adult in school cares about me	0.59*	0.54	0.65	0.53*	0.46	0.61
High level of school connectedness	0.38*	0.34	0.42	0.35*	0.29	0.41
School provides meaningful opportunities	0.67*	0.58	0.78	0.77*	0.61	0.97
High level of academic motivation	0.62*	0.55	0.69	0.54*	0.45	0.64
High level of school expectations	0.61*	0.55	0.68	0.54*	0.45	0.65
Bullying and victimization past 12-months						
Violent victimization at school	2.82*	2.53	3.13	3.52*	3.02	4.09
Psychologically bullied at school	3.50*	3.19	3.83	3.54*	3.07	4.09
Cyber bullying on internet	3.28*	2.97	3.63	3.74*	3.24	4.33
Ever skipped school in past 12-months	1.79*	1.63	1.95	2.37*	2.06	2.73

[1] Six school districts assessed past year suicide ideation.
[2] Five school districts assessed past year suicide attempt.
* Statistically significant difference ($p<0.05$)
OR=Odds Ratio; CI=Confidence Interval; REF=Reference Category

Table 37. Multivariable logistic regression modeling the relationship between risk and protective factors and past year suicidal ideation and suicide attempt, among public high school students, California Healthy Kids Survey, 2013–2014, Santa Clara County, CA.

	Suicidal Ideation 2013–2014[1] (n = 2846)			Suicide Attempt 2013–2014[2] (n = 1093)		
	OR	**95% CI**		**OR**	**95% CI**	
Lifetime alcohol/substance use						
Drank alcohol	1.11	0.96	1.27	1.07	0.86	1.34
Use illicit drugs (marijuana, cocaine, ecstasy)	0.93	0.79	1.08	1.30*	1.03	1.63
Use pain medication	1.56*	1.33	1.84	1.86*	1.51	2.29
Smoked a cigarette	1.09	0.91	1.30	1.48*	1.16	1.88
Gender						
Female	1.47*	1.31	1.65	1.51*	1.26	1.82
Male	REF			REF		
Sexual Orientation						
Lesbian, gay, bisexual	2.39*	1.98	2.90	2.58*	2.02	3.29
Depressive symptoms						
Feeling sad or hopeless almost every day for two weeks or more, past year	7.30*	6.48	8.22	4.38*	3.63	5.27
Relationship with school						
Teacher-adult in school cares about me	0.83*	0.74	0.94	0.74*	0.61	0.91
High level of school connectedness	0.74*	0.66	0.84	0.72*	0.59	0.88
School provides meaningful opportunities	0.97	0.79	1.19	1.21	0.89	1.66
High level of academic motivation	0.91	0.79	1.04	0.85	0.69	1.06
High level of school expectations	0.97	0.82	1.14	0.93	0.71	1.22
Bullying and victimization past 12-months						
Violent victimization at school	1.48*	1.29	1.71	1.88*	1.55	2.28
Psychologically bullied at school	1.55*	1.36	1.76	1.31*	1.08	1.59
Cyber bullying on internet	1.15	1.00	1.32	1.25*	1.03	1.52
Ever skipped school in past 12-months	1.06	0.94	1.20	1.21*	1.01	1.44

[1] Six school districts assessed past year suicidal ideation.
[2] Five school districts assessed past year suicide attempt.
* Statistically significant difference ($p<0.05$)
Note: all significant risk factors identified in bivariate logistic regression models were included in the multivariate logistic regression model.
OR=Odds Ratio; CI=Confidence Interval; REF=Reference Category

Table 38. Logistic regression modeling the relationship between risk and protective factors and past year suicidal ideation among public high school students, by school district, California Healthy Kids Survey, 2013–2014, Santa Clara County, CA.

	East Side Union (n=9154)			Gilroy Unified (n=1195)			Morgan Hill Unified (n=1126)		
	OR	**95% CI**		**OR**	**95% CI**		**OR**	**95% CI**	
Lifetime alcohol/substance use									
Drank alcohol	1.80*	1.61	2.02	1.84*	1.22	2.76	2.42*	1.74	3.36
Use illicit drugs (marijuana, cocaine, ecstasy)	1.76*	1.57	1.98	1.68*	1.13	2.50	2.65*	1.91	3.67
Use pain medication	2.36*	2.02	2.76	2.74*	1.77	4.24	2.67*	1.86	3.82
Smoked a cigarette	1.89*	1.62	2.21	1.73*	1.08	2.78	3.47*	2.36	5.11
Gender									
Female	2.11*	1.88	2.38	2.45*	1.57	3.81	2.44*	1.74	3.42
Male	REF			REF			REF		
Sexual Orientation									
Lesbian, gay, bisexual	3.99*	3.34	4.77	6.84*	3.44	13.60	5.50*	3.23	9.36
Depressive symptoms									
Feeling sad or hopeless almost every day for two weeks or more, past year	9.77*	8.57	11.13	11.83*	7.67	18.24	14.57*	9.72	21.84
Relationship with school									
Teacher-adult in school cares about me	0.68*	0.61	0.76	0.60*	0.39	0.92	0.53*	0.38	0.75
High level of school connectedness	0.42*	0.37	0.48	0.39*	0.26	0.59	0.29*	0.20	0.43
School provides meaningful opportunities	0.76*	0.63	0.91	0.58	0.30	1.13	0.58	0.30	1.13
High level of academic motivation	0.66*	0.57	0.76	0.67	0.41	1.09	0.58*	0.37	0.90
High level of school expectations	0.68*	0.60	0.78	0.67*	0.47	0.96	0.55*	0.36	0.85
Bullying and victimization past 12-months									
Violent victimization at school	2.63*	2.31	2.99	3.75*	2.37	5.95	2.91*	2.00	4.23
Psychologically bullied at school	3.33*	2.97	3.74	5.19*	3.45	7.82	3.53*	2.52	4.94
Cyber bullying on internet	3.17*	2.79	3.59	3.05*	1.95	4.77	3.01*	2.11	4.29
Ever skipped school in past 12-months	1.59*	1.42	1.78	1.64*	1.09	2.48	2.82*	2.03	3.90

* Statistically significant difference ($p<0.05$)

OR=Odds Ratio; CI=Confidence Interval; REF=Reference Category

Table 38, continued. Logistic regression modeling the relationship between risk and protective factors and past year suicidal ideation among public high school students, by school district, California Healthy Kids Survey, 2013–2014, Santa Clara County, CA.

	Mountain View-Los Altos Union (n=1567)			Palo Alto Unified (n=1457)			Santa Clara Unified (n=1576)		
	OR	**95% CI**		**OR**	**95% CI**		**OR**	**95% CI**	
Lifetime alcohol/substance use									
Drank alcohol	2.67*	1.98	3.59	1.95*	1.38	2.77	2.56*	1.93	3.41
Use illicit drugs (marijuana, cocaine, ecstasy)	1.95*	1.43	2.68	1.79*	1.21	2.66	2.43*	1.82	3.23
Use pain medication	3.68*	2.37	5.71	3.06*	1.94	4.84	3.23*	2.32	4.50
Smoked a cigarette	2.12*	1.40	3.21	2.41*	1.43	4.05	2.53*	1.76	3.65
Gender									
Female	2.32*	1.71	3.14	1.88*	1.33	2.67	2.17*	1.62	2.90
Male	REF			REF			REF		
Sexual Orientation									
Lesbian, gay, bisexual	6.69*	3.97	11.27	3.34*	1.89	5.93	4.57*	2.96	7.05
Depressive symptoms									
Feeling sad or hopeless almost every day for two weeks or more, past year	11.82*	8.51	16.40	22.24*	14.67	33.70	13.26*	9.47	18.55
Relationship with school									
Teacher-adult in school cares about me	0.53*	0.39	0.72	0.39*	0.27	0.55	0.49*	0.37	0.65
High level of school connectedness	0.41*	0.31	0.55	0.28*	0.19	0.39	0.37*	0.27	0.50
School provides meaningful opportunities	0.61*	0.41	0.92	0.60	0.36	1.00	0.58	0.34	1.00
High level of academic motivation	0.55*	0.39	0.77	0.61*	0.41	0.90	0.59*	0.42	0.83
High level of school expectations	0.52*	0.39	0.71	0.51*	0.35	0.74	0.56*	0.40	0.79
Bullying and victimization past 12-months									
Violent victimization at school	4.11*	2.84	5.93	2.41*	1.53	3.80	2.27*	1.63	3.15
Psychologically bullied at school	3.90*	2.90	5.26	3.04*	2.14	4.30	3.43*	2.57	4.58
Cyber bullying on internet	4.12*	2.97	5.69	3.06*	2.07	4.54	3.75*	2.73	5.16
Ever skipped school in past 12-months	2.59*	1.93	3.48	1.77*	1.25	2.51	2.12*	1.59	2.83

* Statistically significant difference ($p<0.05$)
OR=Odds Ratio; CI=Confidence Interval; REF=Reference Category

Table 39. Weighted prevalence of past year suicidal ideation among public high school students at Palo Alto and Morgan Hill Unified School Districts, California Healthy Kids Survey, Santa Clara County, CA.

School Year	Palo Alto Unified	Morgan Hill Unified	All Districts Participating
	Weighted % (n)	Weighted % (n)	Weighted % (n)
2007–2008	--	15.9 (146)	15.3 (3676) [1]
2009–2010	17.9 (231)	--	16.6 (4217) [2]
2011–2012	10.5 (171)	--	18.6 (2133) [3]
2013–2014	12.5 (173)	19.7 (218)	18.3 (2846) [4]

Note: Different school districts assessed past year suicidal ideation in each survey administration of CHKS, therefore comparisons to the overall weighted prevalence should be made with caution.
-- Item not assessed in year of administration
[1] Seven school districts: Campbell Union, Fremont Union, Gilroy Unified, Los-Gatos Saratoga Union, Mountain View-Los Altos Union, Morgan Hill Unified, Santa Clara Unified
[2] Nine school districts: Campbell Union, Fremont Union, Gilroy Unified, Los-Gatos Saratoga Union, Milpitas Unified, Mountain View-Los Altos Union, Palo Alto Unified, Santa Clara Unified, San Jose Unified
[3] Four school districts: Gilroy Unified, Milpitas Unified, Palo Alto Unified, Santa Clara Unified.
[4] Six school districts participated: East Side Union, Gilroy Unified, Mountain View-Los Altos Union, Morgan Hill Unified, Palo Alto Unified, Santa Clara Unified.

Table 40. Logistic regression modeling the relationship between risk and protective factors and past year suicidal ideation among public high school students in the Palo Alto Unified School District (PAUSD), California Healthy Kids Survey, 2009–2014, Santa Clara County, CA.

	PAUSD (n=1457) 2013–2014			PAUSD (n=1529) 2011–2012			PAUSD (n=1370) 2009–2010		
	OR	**95% CI**		**OR**	**95% CI**		**OR**	**95% CI**	
Lifetime alcohol/substance use									
Drank alcohol	1.95*	1.38	2.77	1.76*	1.22	2.56	1.51*	1.10	2.06
Use illicit drugs (marijuana, cocaine, ecstasy)	1.79*	1.21	2.66	2.18*	1.46	3.25	1.69*	1.19	2.41
Use pain medication	3.06*	1.94	4.84	4.15*	2.37	7.26	5.59*	3.43	9.11
Smoked a cigarette	2.41*	1.43	4.05	2.16*	1.45	3.22	2.64*	1.80	3.87
Gender									
Female	1.88*	1.33	2.67	1.92*	1.32	2.81	1.77*	1.29	2.42
Male	REF			REF			REF		
Sexual Orientation									
Lesbian, gay, bisexual	3.34*	1.89	5.93	--	--	--	--	--	--
Depressive symptoms									
Feeling sad or hopeless almost every day for two weeks or more, past year	22.24*	14.67	33.70	12.35*	8.19	18.62	8.55*	6.08	12.03
Relationship with school									
Teacher-adult in school cares about me	0.39*	0.27	0.55	0.62*	0.42	0.90	0.53*	0.38	0.73
High school connectedness (high)	0.28*	0.19	0.39	--	--	--	--	--	--
School provides meaningful opportunities (high)	0.60	0.36	1.00	--	--	--	--	--	--
Academic motivation (high)	0.61*	0.41	0.90	--	--	--	--	--	--
High school expectations	0.51*	0.35	0.74	--	--	--	--	--	--
Bullying and victimization past 12-months									
Violent victimization at school	2.41*	1.53	3.80	2.23*	1.41	3.51	2.22*	1.53	3.22
Psychologically bullied at school	3.04*	2.14	4.30	2.84*	1.95	4.13	2.73*	1.99	3.73
Cyber bullying on internet	3.06*	2.07	4.54	3.51*	2.40	5.14	2.48*	1.78	3.46
Ever skipped school in past 12-months	1.77*	1.25	2.51	1.95*	1.34	2.84	2.26*	1.65	3.09

* Statistically significant difference ($p<0.05$)
-- Item not assessed in year of administration.
OR=Odds Ratio; CI=Confidence Interval; REF=Reference Category

Table 41. Logistic regression modeling the relationship between risk and protective factors and past year suicidal ideation among public high school students in the Morgan Hill Unified School District (MHUSD), California Healthy Kids Survey, 2007–2008 and 2013–2014, Santa Clara County, CA.

	MHUSD (n=1126) 2013–2014			MHUSD (n=1101) 2007–2008		
	OR	**95% CI**		**OR**	**95% CI**	
Lifetime alcohol/substance use						
Drank alcohol	2.42*	1.74	3.36	1.74*	1.16	2.61
Use illicit drugs (marijuana, cocaine, ecstasy)	2.65*	1.91	3.67	1.46*	0.96	2.22
Use pain medication	2.67*	1.86	3.82	2.70*	1.70	4.30
Smoked a cigarette	3.47*	2.36	5.11	1.85*	1.21	2.83
Gender						
Female	2.44*	1.74	3.42	1.63*	1.09	2.44
Male	REF			REF		
Sexual Orientation						
Lesbian, gay, bisexual	5.50*	3.23	9.36	--	--	--
Depressive symptoms						
Feeling sad or hopeless almost every day for two weeks or more, past year	14.57*	9.72	21.84	8.34*	5.35	12.99
Relationship with school						
Teacher-adult in school cares about me	0.53*	0.38	0.75	0.63*	0.43	0.94
High school connectedness (high)	0.29*	0.20	0.43	--	--	--
School provides meaningful opportunities (high)	0.58	0.30	1.13	--	--	--
Academic motivation (high)	0.58*	0.37	0.90	--	--	--
High school expectations	0.55*	0.36	0.85	--	--	--
Bullying and victimization past 12-months						
Violent victimization at school	2.91*	2.00	4.23	2.00*	1.30	3.08
Psychologically bullied at school	3.53*	2.52	4.94	2.71*	1.81	4.05
Cyber bullying on internet	3.01*	2.11	4.29	--	--	--
Ever skipped school in past 12-months	2.82*	2.03	3.90	2.21*	1.48	3.29

* Statistically significant difference ($p<0.05$)
-- Item not assessed in year of administration.
OR=Odds Ratio; CI=Confidence Interval; REF=Reference Category

Table 42. Logistic regression modeling the relationship between risk and protective factors and past year suicidal ideation among public high school students in the Palo Alto Unified School District (PAUSD), California Healthy Kids Survey PAUSD Special Module, 2015–2016, Santa Clara County, CA.

	Suicidal Ideation		
	OR	**95% CI**	
Gender			
Female	1.45*	1.15	1.85
Male	REF		
Individual level perceptions			
Know where to go for help with a problem.	0.24*	0.19	0.31
When need help, find someone to talk with.	0.34*	0.27	0.44
Try understand how other people feel and think.	0.54*	0.39	0.75
There is a purpose to my life	0.17*	0.13	0.22
Understand my moods and feelings	0.22*	0.17	0.28
I help other people	0.54*	0.41	0.71
Relationship with parents or adults in home			
Parent or some other adult talks with me about my problems	0.24*	0.19	0.31
Parent or some other adult always wants me to do my best	0.30*	0.20	0.43
Help make decisions with my family	0.36*	0.28	0.45
Family members really help and support one another	0.28*	0.21	0.36
Feeling of togetherness in my family	0.29*	0.23	0.38
Relationship with teachers and adults in school			
Teachers and other adults at school treat all students with respect	0.37*	0.29	0.47
Teachers and other adults encourage me to work hard in school	0.43*	0.32	0.56
Teachers and other adults work hard to help me with my schoolwork	0.41*	0.31	0.53
Teachers give me a change to take part in classroom discussions or activities	0.53*	0.41	0.69
Teachers help students catch up when they return from an absence	0.51*	0.40	0.66
Have been disrespected or mistreated by an adult at this school because of race/ethnicity/nationality	0.60*	0.44	0.84
Relationship with adults outside of home and school			
There is an adult who tells me when I do a good job	0.30*	0.23	0.39
There is an adult who notices when I am upset	0.29*	0.23	0.37
There is an adult who always wants me to do my best	0.32*	0.23	0.44
There is an adult whom I trust.	0.30*	0.23	0.39

Table 42, continued. Logistic regression modeling the relationship between risk and protective factors and past year suicidal ideation among public high school students in the Palo Alto Unified School District (PAUSD), California Healthy Kids Survey PAUSD Special Module, 2015–2016, Santa Clara County, CA.

	Suicidal Ideation		
	OR	**95% CI**	
Participation in activities			
Part of clubs, sports teams, church/temple,	0.54*	0.41	0.71
Involved am involved in music, art, literature, sports	0.58*	0.43	0.78
Social support/connectedness			
Have a friend my own age who really cares about me.	0.40*	0.30	0.54
There is an adult who really cares about me.	0.27*	0.20	0.36
School culture			
There is a lot of tension at school between different cultures, races, or ethnicities	0.80	0.60	1.06
All students are treated fairly when they break the rules	0.45*	0.36	0.58
My school is safe for guys who are not as 'masculine' as other guys	0.49*	0.36	0.67
My school is safe for girls who are not as 'feminine' as other girls.	0.48*	0.34	0.67
My school is safe for students who are lesbian, gay, bisexual, transgender, queer	0.73	0.51	1.04
My school is safe for students with LGBTQ parents	0.63*	0.43	0.92
Sleep related difficulties			
Sleep difficulties interfere with daily functioning	2.44*	1.89	3.16
Sleep difficulties affected my school work	1.85*	1.44	2.39
Felt sleepy during the school day	1.86*	1.32	2.62
Difficulty concentrating on things because sleepy/tired	2.40*	1.79	3.23
Difficult remembering things because sleepy/tired	2.37*	1.83	3.08

* Statistically significant difference ($p<0.05$)

OR=Odds Ratio; CI=Confidence Interval; REF=Reference Category

Table 43. Logistic regression modeling the relationship between, knowledge, attitudes and perceptions of youth suicide in Palo Alto, Project Safety Net Community Survey, 2016, Santa Clara County, CA (n=1065).

	Overall†		Current Parent		Current Student		Current Student vs. Current Parent		
	n	%	n	%	n	%	OR	CI	CI
Youth suicide is a current problem in Palo Alto	944	89.1	425	89.5	197	86.0	0.7	0.5	1.2
Suicide is preventable	873	82.4	384	80.8	185	80.8	1.0	0.7	1.5
Suicide is bound to happen	182	17.3	67	14.2	55	24.2	1.9*	1.3	2.9
Suicide is shameful, something to be hidden	44	4.2	17	3.6	18	7.9	2.3*	1.2	4.5
I am comfortable talking about suicide with my family and friends	733	69.2	353	74.3	119	52.0	0.4*	0.3	0.5
I would recognize if a friend or family member was thinking about killing themselves	409	38.7	149	31.4	107	46.9	1.9*	1.4	2.7
I know how and where to get help for a friend or family member who is thinking about killing themselves	752	71.0	340	71.6	158	69.3	0.9	0.6	1.3
Depression is a medical disorder that responds to treatment	857	80.9	415	87.4	138	60.3	0.2*	0.2	0.3
I would support a friend or family member who decided to seek professional help for depression	1048	98.9	470	99.0	223	97.8	0.5	0.1	1.7
I would support a friend or family member who decided to seek professional help for suicidal thoughts	1047	99.0	469	99.0	226	98.7	0.8	0.2	3.4
I would be comfortable telling a friend or family member if I felt I needed professional help for depression	764	72.0	382	80.6	119	52.0	0.3*	0.2	0.4
I would support a friend or family member who decided to seek professional help for suicidal thoughts	1049	99.0	470	99.2	223	97.4	0.3	0.1	1.1
If I am concerned that a friend or family member is considering suicide, I would ask them – it will not plant the idea in their mind	740	69.9	369	78.0	116	50.7	0.3*	0.2	0.4

Note: Current students were compared to current parents, with parents as referent

†Overall percent of respondents that agreed with statement about suicide in Palo Alto

* Statistically significant difference ($p<0.05$)

Table 44. Comparison of the perception of the level of association between risk factors and youth suicide in Palo Alto between current students and parents, Project Safety Net Community Survey, 2016, Santa Clara County, CA (n=1065).

	Overall† (n=1065)		Current Student (n=255)		Current Parent (n=489)	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Academic distress or pressure*	73.7	22.0	71.6	22.9	76.9	22.5
Alcohol, drug or substance abuse*	51.0	27.1	54.7	27.1	43.7	26.5
Bullying*	60.3	26.7	61.1	26.2	55.9	28.4
Childhood trauma	52.7	26.7	52.3	27.0	52.1	27.2
Depression mental health issues*	84.5	18.6	85.3	17.7	80.8	22.6
Disconnected and socially isolated*	70.5	22.7	72.4	21.8	65.5	26.0
Family or friends with history of suicide*	52.6	26.5	56.1	26.1	43.8	28.1
Family or cultural pressures*	69.4	23.5	72.2	21.9	61.9	26.7
Issues pertaining to gender identity or sexual orientation*	54.1	26.6	54.7	26.5	48.8	27.4
Lack of access to mental health care*	58.7	28.3	62.0	27.5	49.4	29.8
Life challenges*	67.9	22.2	66.1	22.0	70.8	23.4
Living with intellectual, mental, or physical disabilities	49.6	27.0	49.0	26.8	48.9	28.0
Poor coping skills*	64.9	25.0	69.5	22.6	57.4	27.5
Sleep deprivation or disorders*	67.1	24.7	71.1	22.7	59.7	27.6
Suicide "contagion"*	58.5	25.6	63.6	23.0	47.7	28.1
Family economic distress	41.0	25.7	39.7	26.0	38.3	25.8
Violence or sexual assault	53.5	28.4	52.6	29.1	51.8	29.6
Unsafe reporting by media*	45.5	27.1	47.5	26.3	42.2	28.9

†Overall mean score of level of association between risk factor and suicide in Santa Clara County. Scale to measure level of association was 0 (no association) to 100 (determining factor). Higher mean score indicates higher perceived level of association.

* Statistically significant difference ($p<0.05$)

Table 45. Logistic regression modeling the level of support for suicide prevention activities in Palo Alto, Project Safety Net Community Survey, 2016, Santa Clara County, CA (n=1065).

	Overall† (n=1065)		Current Student vs. Current Parent		
	n	%	OR	CI	CI
Means restriction at the tracks	615	59.0	0.6*	0.42	0.79
School-based efforts to reduce unnecessary stress	865	82.6	0.5*	0.33	0.74
Efforts to improve access to mental health providers	941	90.4	0.4*	0.26	0.69
Efforts to strengthen culturally tailored mental health services for diverse communities	864	82.5	0.4*	0.28	0.60
Require suicide prevention training for all who work with youth	839	80.1	0.5*	0.33	0.68
Efforts to increase youth input and involvement in their schools and community	861	82.3	0.3*	0.21	0.46
Provide "Parenting" education	849	81.2	0.3*	0.19	0.41
Provide community-based youth suicide prevention programs	839	80.8	0.3*	0.21	0.44
Media compliance with recommendations for safe reporting of suicide	772	73.8	0.4*	0.27	0.54
A local public information campaign to reduce stigma, share resources, and encourage help-seeking behaviors	849	81.6	0.4*	0.30	0.65
Mini-grants to community organizations and local groups to implement youth suicide prevention activities and trainings	743	71.2	0.4*	0.28	0.56

Note: Current students were compared to current parents, with parents as referent

†Overall percent of respondents that supported suicide prevention activity.

*Statistically significant difference ($p<0.05$)

Table 46. Characteristics of media articles reporting on suicides in Santa Clara County, California area, and meeting media scan inclusion criteria, by year, 2009–2015.

Characteristic	2009 (n=53)	2010 (n=35)	2011 (n=23)	2012 (n=18)	2013 (n=30)	2014 (n=32)	2015 (n=47)	Total (n=246)
Sensational headline	40%	34%	35%	11%†	17%†	9%†	21%†	26%
Picture of location	8%	6%	0%	0%	0%	0%	6%	5%
Picture of method of suicide	6%	3%	0%	0%	0%	0%	9%	4%
Picture of memorials/grieving	9%	3%	0%	0%	0%	0%	9%	4%
Picture of body	4%	0%	0%	0%	0%	0%	0%	1%
Picture of investigation scene	4%	3%	0%	0%	0%	0%	0%†	3%
Strong language	15%	11%	13%	0%	7%	0%†	21%*	11%
Describe suicide as inexplicable	9%	3%	0%	0%	0%	0%	6%	4%
Says "commit suicide"	32%	26%	4%*†	0%†	10%†	13%†	6%†	16%
Information about suicide note	17%	0%*	0%†	0%	10%	9%	2%†	7%
Name of individual	51%	86%*	52%*	61%	63%	50%	32%	56%
Name of school	53%	49%	9%*†	17%†	13%†	28%†	51%*	36%
Open comments section	67%	65%	53%	71%	78%†	70%	58%	66%
Comments memorialize victim	33%	55%	30%	33%	14%	6%†	0%†	22%
Describe location in text	79%	86%	96%	72%*	80%	88%	79%	83%
Describe method of suicide in text	98%	91%	100%	83%*†	93%	91%	89%	93%
Local hotline number	4%	0%	4%	11%	13%	25%†	30%†	13%
National hotline number	2%	3%	0%	6%	7%	28%*†	21%†	10%
Any hotline number	4%	3%	4%	11%	20%†	34%†	40%†	17%
Describes suicide as complex	6%	0%	0%	0%	0%	3%	13%	4%
Number of comments	Mean (range) 28 (0-181)	Mean (range) 46 (0-224)	Mean (range) 18 (0-53)	Mean (range) 11 (5-17)	Mean (range) 7 (0-32) †	Mean (range) 7 (0-24)	Mean (range) 16 (0-167)	Mean (range) 18 (0-224)

Table 46, continued. Characteristics of media articles reporting on suicides in Santa Clara County, California area, and meeting media scan inclusion criteria, by year, 2009–2015.

Characteristic	2009 (n=53)	2010 (n=35)	2011 (n=23)	2012 (n=18)	2013 (n=30)	2014 (n=32)	2015 (n=47)	Total (n=246)
	Mean (range)	Mean (range)	Mean (range)	Mean (range)	Mean (range)	Mean (range)	Mean (range)	Mean (range)
Number of negative characteristicsł	5.3 (2-11)	4.8 (2-9)	3.7 (2-7) *†	3.3 (0-6) †	3.8 (2-7) †	3.6 (1-6) †	3.9 (1-9) †	4.3 (0-11)
Number of positive characteristics‡	0.3 (0-4)	0.5 (0-2)	0.1 (0-1)	0.2 (0-3)	0.2 (0-1)	0.8 (0-4) *†	1.2 (0-7) †	0.5 (0-7)

Inclusion criteria: article reporting on specific suicide death occurring in Palo Alto, Santa Clara County, or the Greater Bay Area during 1/1/2008–12/31/2015 (excluding police/crime blotters, Op-Eds, letters to the editor, obituaries, and articles about murder-suicide or about suicide prevention in general)

łNegative characteristics: big, prominent, or sensational headline; photos of location or method of suicide or suicide attempt; photos of memorials/grieving; use of strong or dramatic language; description of suicide as inexplicable; use of improper terminology; reporting on suicide similar to a crime; inclusion of information about or contents of suicide note; photos of bodies/investigation scene; inclusion of individual's name or school; open comments section; oversimplification of suicide; description of location or method of suicide in text

‡Positive characteristics: inclusion of local/national hotline number and/or logo; inclusion of warning signs; use of proper terminology; discussion of suicide as a public health issue; information from suicide prevention experts; description of suicide as preventable and complex; inclusion of causes of suicide; inclusion of treatment options

*Statistically significantly different from prior year ($p<0.05$); †Statistically significantly different from 2009 ($p<0.05$)

Table 47. Characteristics of media articles reporting on suicides in Santa Clara County, California area, and meeting media scan inclusion criteria, by news source, 2008–2015

Characteristic	Source A (n=19)	Source B (n=28)	Source C (n=24)	Source D (n=37)	Source E (n=43)	Source F (n=63)	Source G (n=15)	Other (n=17)
Sensational headline	5%	21%	29%	22%	28%	29%	27%	41%
Picture of location	0%	11%	0%	0%	12%	5%	7%	6%
Picture of method of suicide	0%	14%	0%	3%	9%	2%	7%	0%
Picture of memorials/grieving	0%	11%	0%	0%	5%	3%	7%	12%
Picture of body	0%	0%	0%	0%	7%	0%	0%	0%
Picture of investigation scene	0%	0%	0%	0%	9%	3%	7%	0%
Strong language	0%	11%	8%	19%	9%	8%	0%	41%
Describe suicide as inexplicable	0%	7%	0%	3%	9%	3%	0%	0%
Says "commit suicide"	21%	4%	21%	16%	5%	32%	0%	12%
Information about suicide note	5%	4%	13%	0%	7%	11%	0%	6%
Name of individual	74%	18%	63%	32%	70%	63%	73%	59%
Name of school	26%	21%	42%	24%	30%	46%	40%	65%
Open comments section	95%	54%	100%	0%	100%	0%	87%	41%
Comments memorialize victim	21%	0%	21%	--	23%	--	47%	0%
Describe location in text	84%	89%	88%	78%	95%	78%	73%	65%
Describe method of suicide in text	100%	93%	88%	100%	100%	90%	80%	76%
Local hotline number	11%	11%	17%	5%	16%	14%	13%	12%
National hotline number	0%	18%	8%	3%	14%	11%	7%	12%
Any hotline number	11%	21%	17%	8%	21%	21%	20%	12%
Describes suicide as complex	0%	7%	0%	8%	2%	2%	0%	18%
	Mean (range)	**Mean (range)**	**Mean (range)**	**Mean (range)**	**Mean (range)**	**Mean (range)**	**Mean (range)**	**Mean (range)**
Number of comments	10 (0-76)	5 (0-35)	5 (0-17)	--	35 (0-181)	--	25 (0-224)	3 (0-15)

Table 47, continued. Characteristics of media articles reporting on suicides in Santa Clara County, California area, and meeting media scan inclusion criteria, by news source, 2008–2015.

Characteristic	Source A (n=19)	Source B (n=28)	Source C (n=24)	Source D (n=37)	Source E (n=43)	Source F (n=63)	Source G (n=15)	Other (n=17)
	Mean (range)	**Mean (range)**	**Mean (range)**	**Mean (range)**	**Mean (range)**	**Mean (range)**	**Mean (range)**	**Mean (range)**
Number of negative characteristics†	4.5 (3-7)	3.6 (1-9)	5.0 (3-7)	3.2 (2-7)	5.3 (2-11)	4.1 (1-11)	4.6 (0-9)	4.3 (2-8)
Number of positive characteristics‡	0.1 (0-1)	1.5 (0-7)	0.3 (0-2)	0.4 (0-5)	0.4 (0-3)	0.5 (0-4)	0.4 (0-2)	1.1 (0-7)

Inclusion criteria: article reporting on specific suicide death occurring in Palo Alto, Santa Clara County, or the Greater Bay Area during 1/1/2008–12/31/2015 (excluding police/crime blotters, Op-Eds, letters to the editor, obituaries, and articles about murder-suicide or about suicide prevention in general)

†Negative characteristics: big, prominent, or sensational headline; photos of location or method of suicide or suicide attempt; photos of memorials/grieving; use of strong or dramatic language; description of suicide as inexplicable; use of improper terminology; reporting on suicide similar to a crime; inclusion of information about or contents of suicide note; photos of bodies/investigation scene; inclusion of individual's name or school; open comments section; oversimplification of suicide; description of location or method of suicide in text

‡Positive characteristics: inclusion of local/national hotline number and/or logo; inclusion of warning signs; use of proper terminology; discussion of suicide as a public health issue; information from suicide prevention experts; description of suicide as preventable and complex; inclusion of causes of suicide; inclusion of treatment options

Table 48. Selection of suicide prevention programs and policies being used in Santa Clara County and how they align with CDC's Suicide Prevention Technical Package strategies.

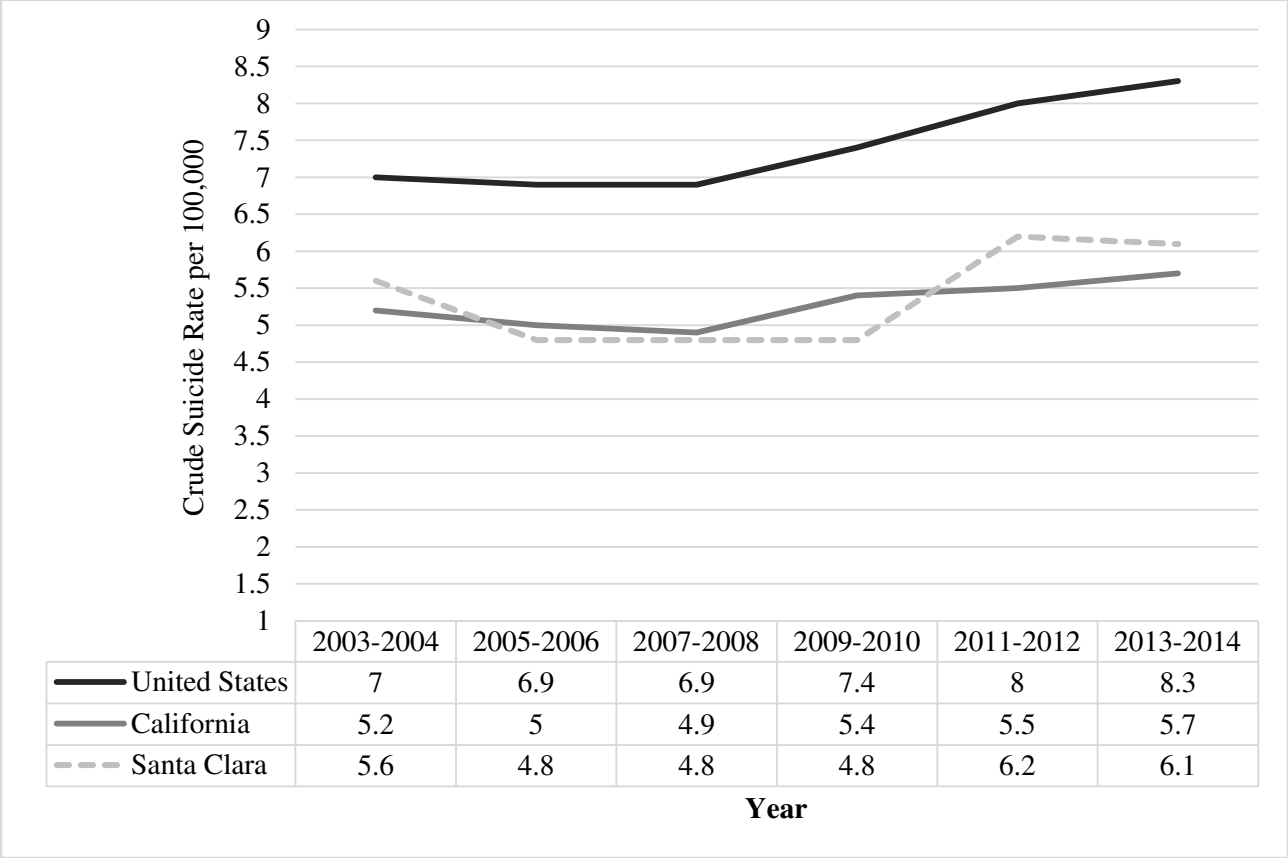
Technical Package Strategy	Example Programs and Policies Used in Santa Clara County
Strengthen economic supports	• *No program or policy identified*
Strengthen access and delivery of suicide care	• School based mental health therapists • School based mental health services for special education youth • School based mental health and wellness coordinators • School based continuity of care plan • School based re-entry plan process following mental health hold • County crisis stabilization unit
Create protective environment	• Track watch • Fencing on train lines • School based mental health and wellness coordinators that engage in postvention • School based Suicide Prevention Administrative Regulation
Promote connectedness	• School based program Sources of Strength • School based "Reach Out Care Know"
Teach coping and problem-solving skills	• School based program Sources of Strength
Identify and support people at risk	• School based QPR training for school staff • School based mental health therapists and services • School based program Sources of Strength • County crisis line • Crisis intervention and risk assessment • County crisis line ASIST training
Lessen harms and prevent future risk	• School based mental health and wellness coordinators that engage in postvention • School based Suicide Prevention Administrative Regulation

Table 49. Risk and protective factors for nonfatal suicidal behavior, high school students, Developmental Assets Survey (2010) and California Healthy Kids Survey (2003–2016), Santa Clara County, CA.

Individual level factors	
Drug, alcohol, pain medication, cigarette use	-
Mental health problems (depressive symptoms, cutting down on food intake)	-
Sexual orientation (Lesbian, Gay, Bisexual)	-
Delinquent behavior	-
Sleep difficulties	-
Female gender	-
Positive perceptions of self	+
Lack of purpose and control over life	-
Sensation seeking	-
Positive outlook on future	+
Problem solving	+
Emotional self-awareness	+
Self-efficacy for help-seeking	+
Sexual intercourse	-
Interpersonal level factors	
Violence perpetration/victimization	-
Family violence	-
Close and positive relationship with parents and family	+
Parent involvement in youth's life	+
Being encouraged by family to do one's best	+
Open communication with parents	+
Engagement in outside activities (e.g., sports, music, art, clubs)	+
Close and positive relationship with adults outside of school/family	+
Caring relationship with fellow students	+
Physical, emotional, cyber bullying	-
Community level factors	
Feeling unsafe safe at school	-
Feeling unsafe in neighborhood	-
Caring relationship with teachers and adults at school	+
School culture	+
Connection to and encouragement from school	+
Being pushed by teachers to be best can be	+
Positive relationship with neighborhood/community	+
High level of school expectations	+

+ protective factor
- risk factor

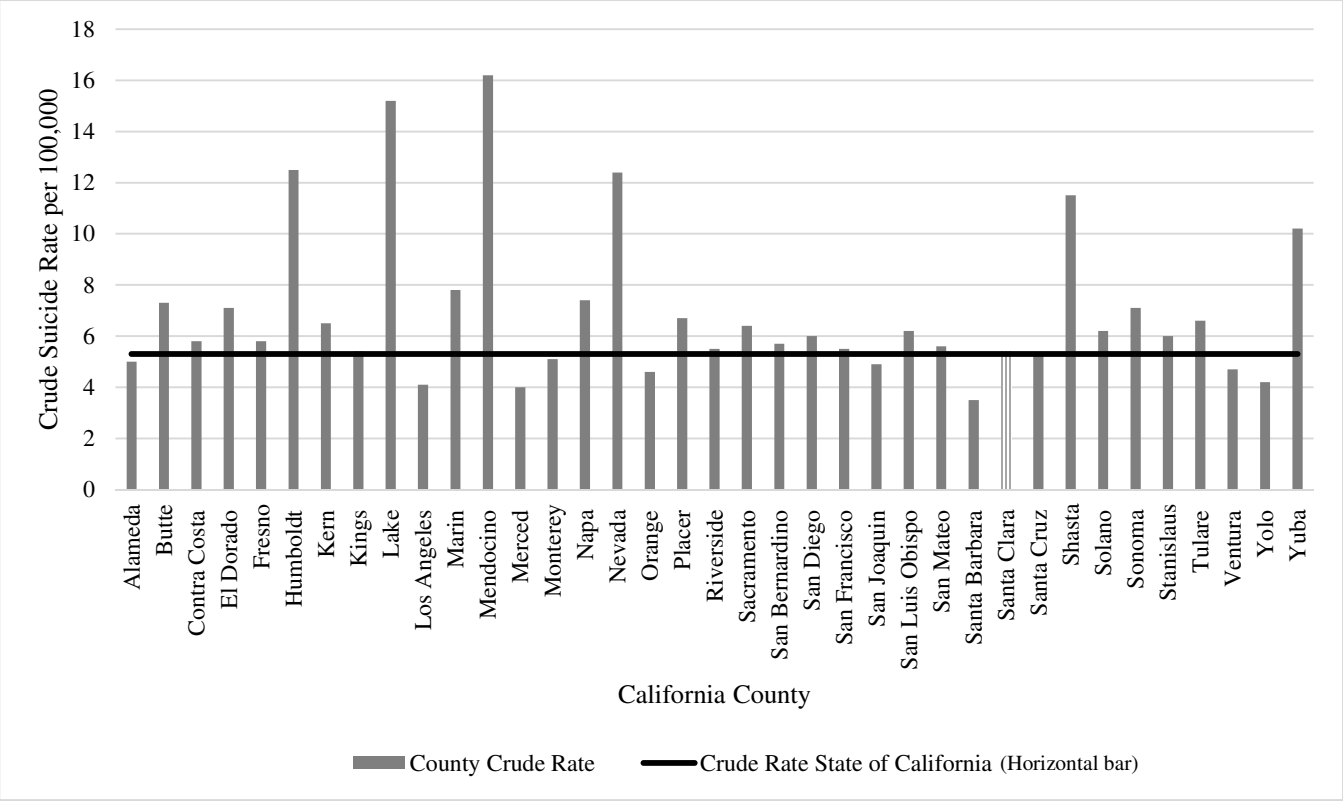
Figure 1. Crude suicide rate by two year periods, among youth, ages 10–24, CDC WONDER, 2003–2014.*



	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014
United States	7	6.9	6.9	7.4	8	8.3
California	5.2	5	4.9	5.4	5.5	5.7
Santa Clara	5.6	4.8	4.8	4.8	6.2	6.1

* Rates and confidence intervals found in Appendix B

Figure 2. Crude suicide rate among youth, ages 10–24, by California County of residence, CDC WONDER , 2003–2014.*



* Suicide rates for several counties in California are not included in Figure 2 because crude rates could not be calculated due to small counts.

Figure 3. Crude suicide rate by method among youth ages 10–24, CDC WONDER, 2003–2014.

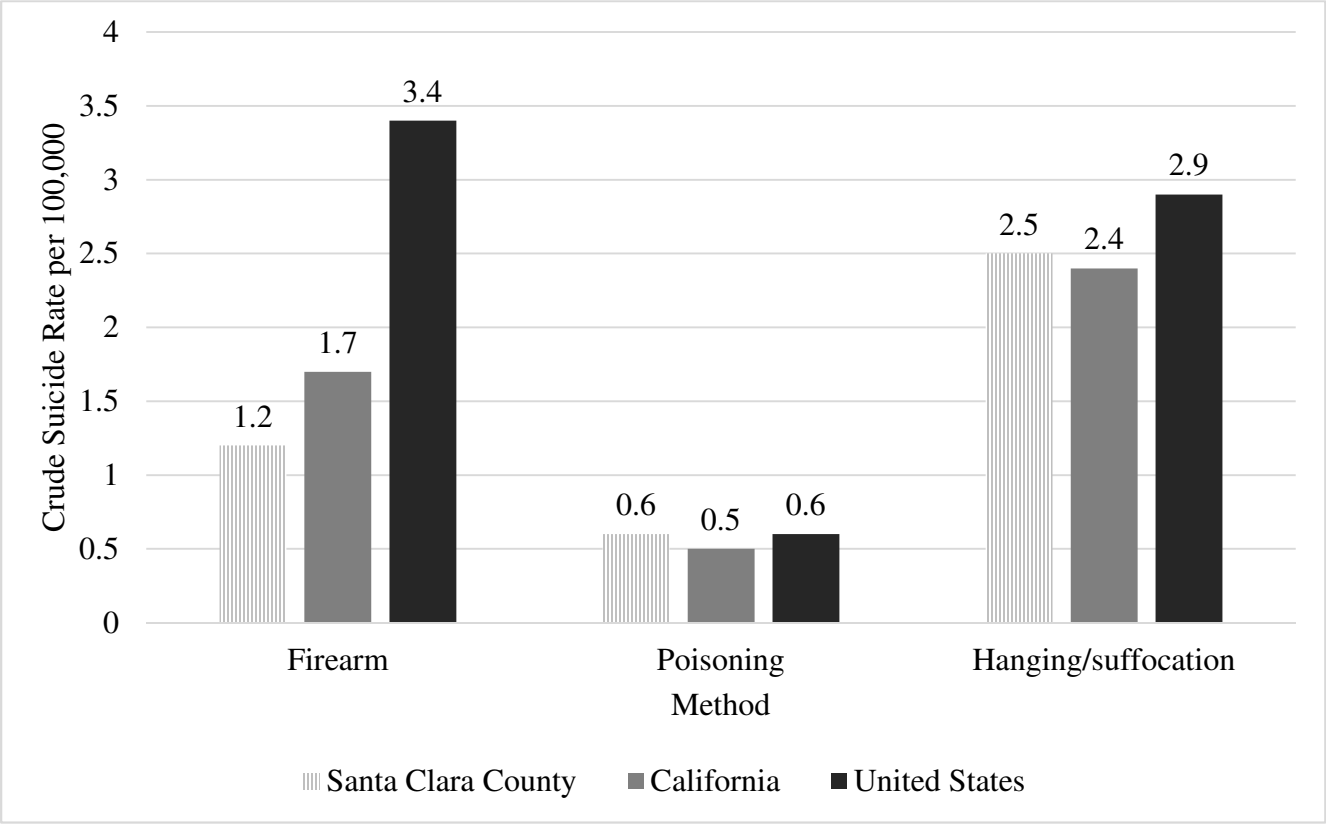


Figure 4. Crude suicide rate by racial group among youth ages 10–24, CDC WONDER, 2003–2014.

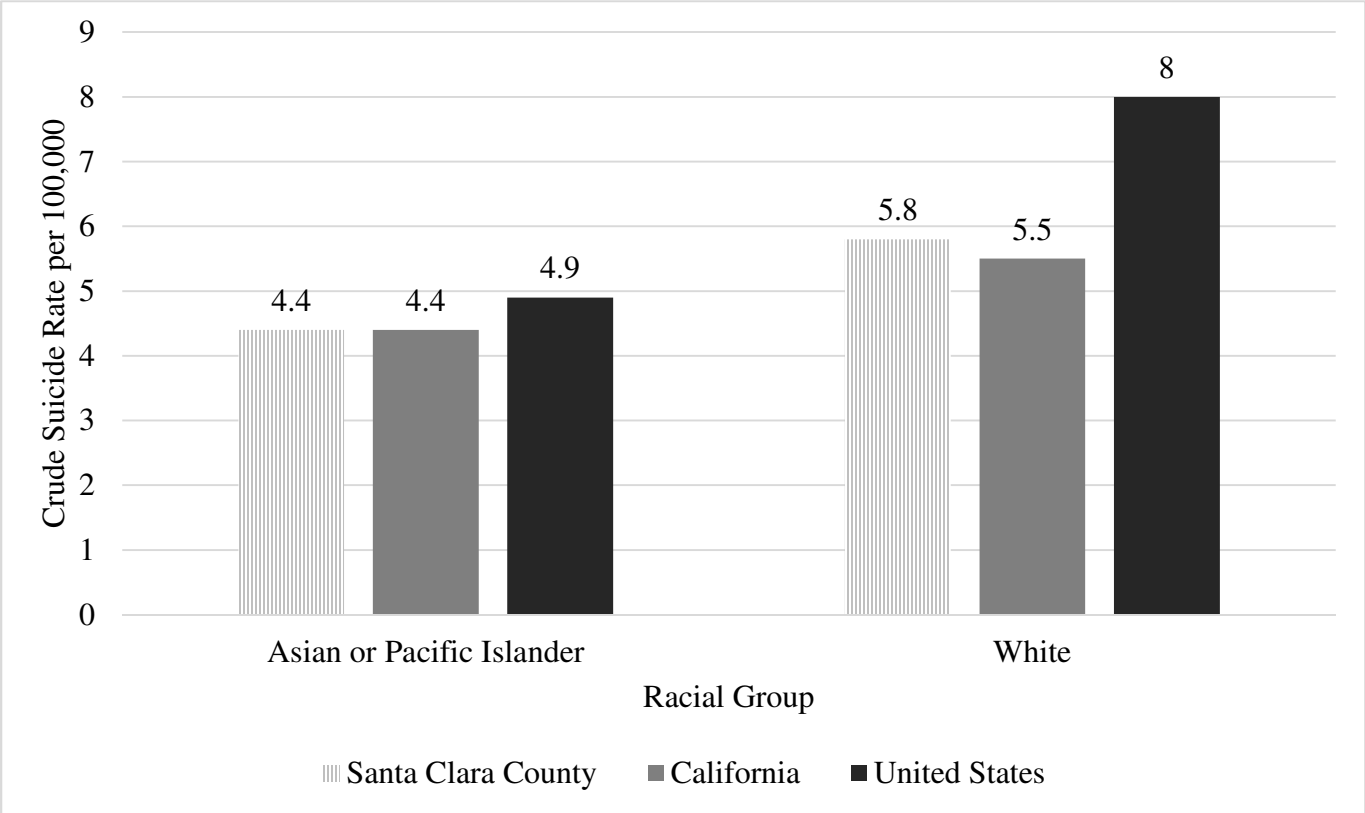


Figure 5. Crude suicide rate by Hispanic ethnicity among youth ages 10–24, CDC WONDER, 2003–2014.

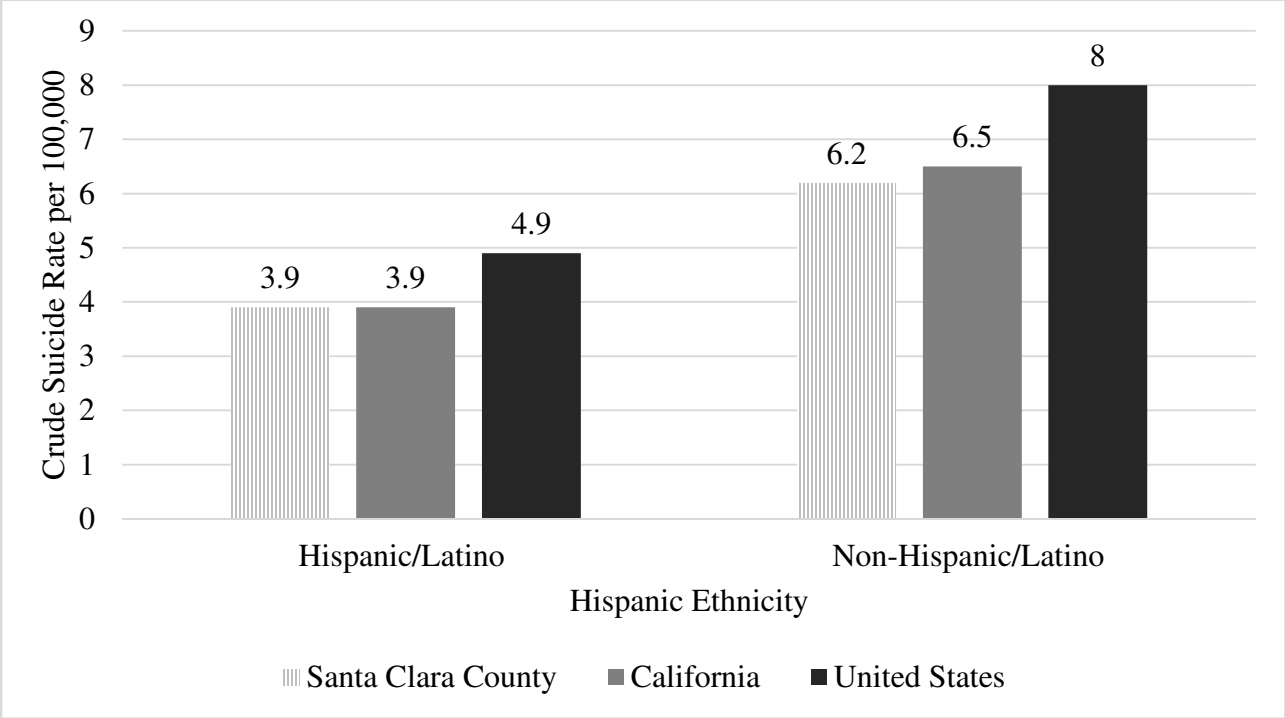


Figure 6. Crude suicide rate by biological sex among youth ages 10–24, CDC WONDER, 2003–2014.

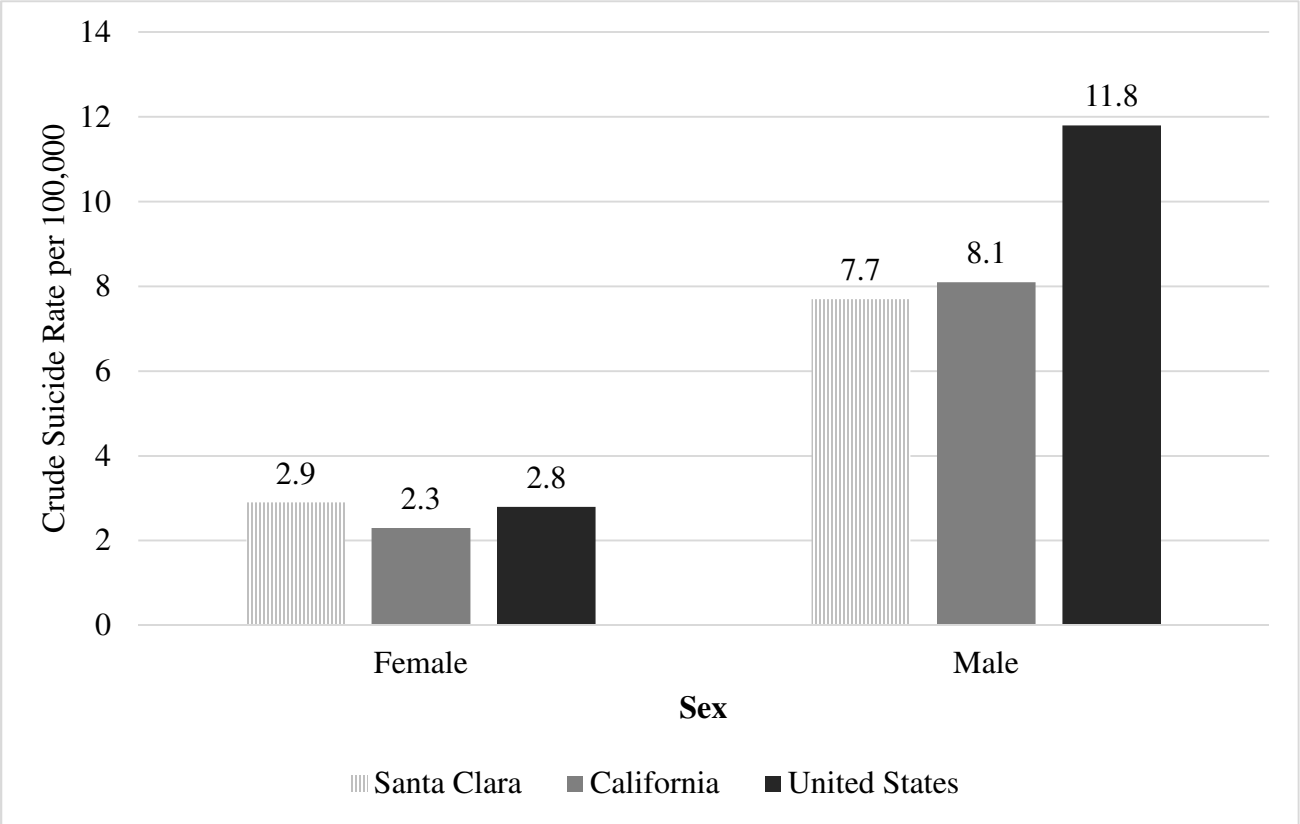


Figure 7. Crude suicide rate by age category among youth ages 10–24, CDC WONDER, 2003–2014.

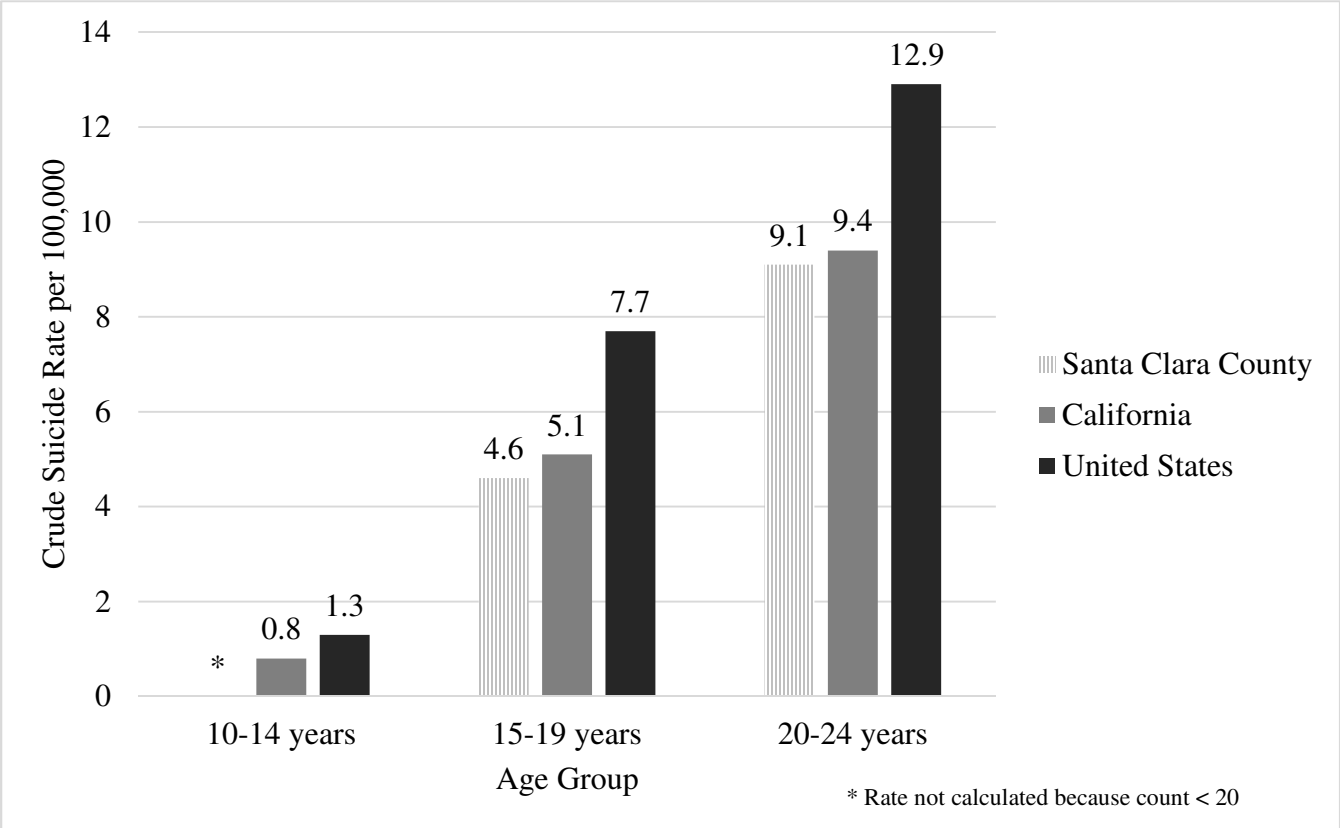


Figure 8. Counts of suicide deaths that occurred in Santa Clara County, among youth age 10–24, vital statistics, 2003–2015, Santa Clara County, CA (n=235).

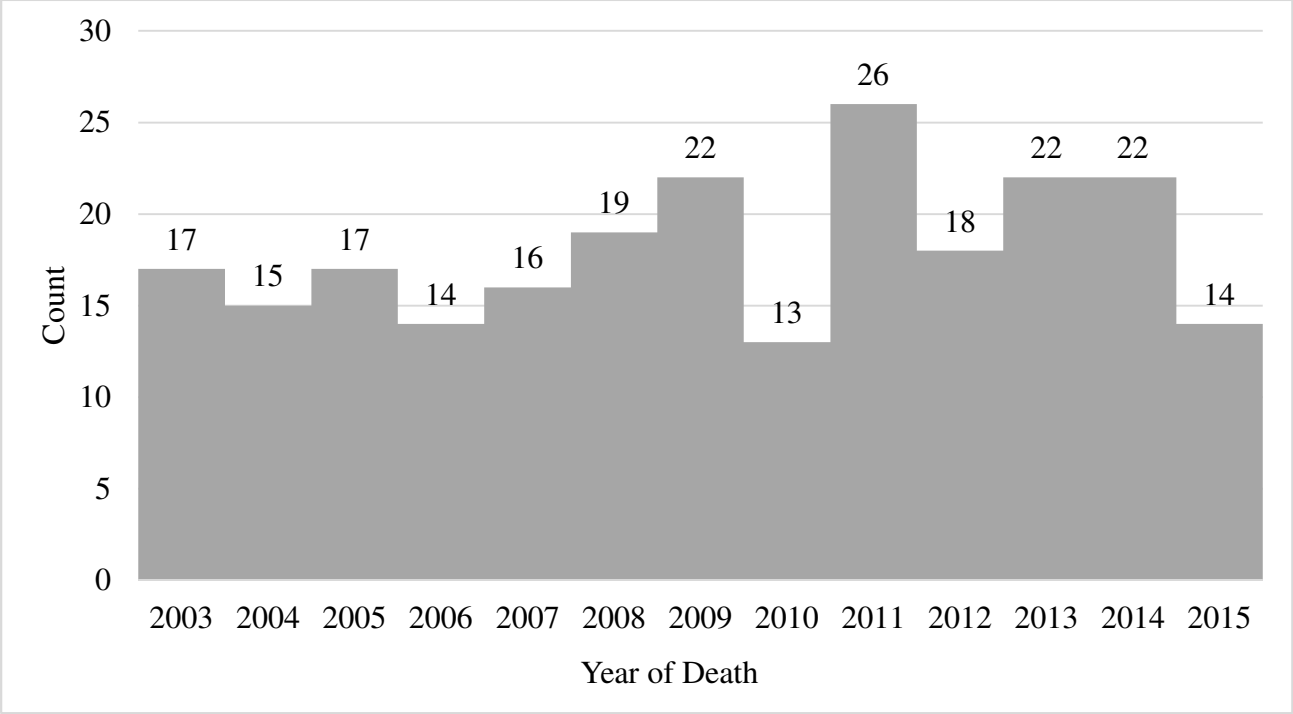
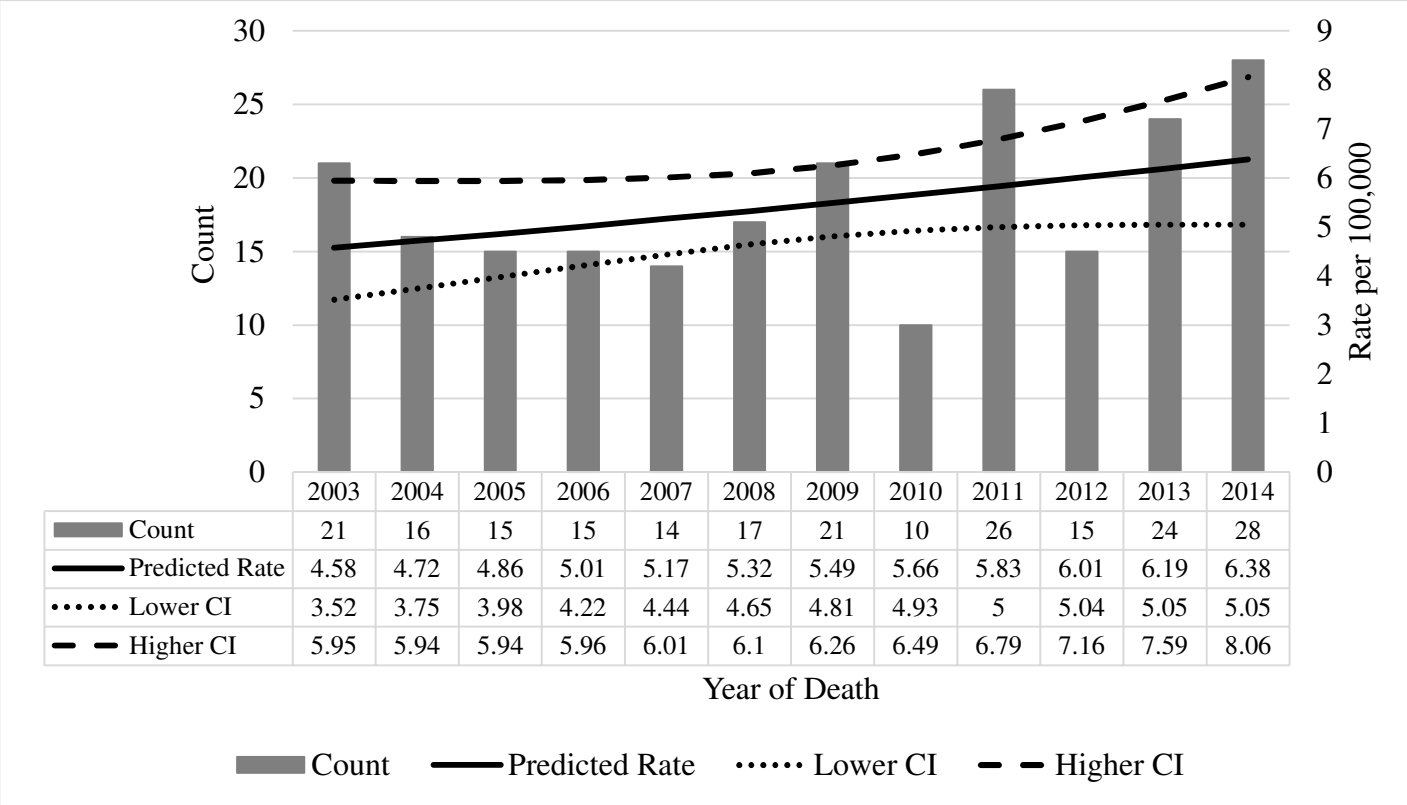


Figure 9. Counts and rates of suicide deaths that occurred in the state of California among residents of Santa Clara County, age 10–24, vital statistics, 2003–2014, Santa Clara County, CA.



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Count	21	16	15	15	14	17	21	10	26	15	24	28
Predicted Rate	4.58	4.72	4.86	5.01	5.17	5.32	5.49	5.66	5.83	6.01	6.19	6.38
Lower CI	3.52	3.75	3.98	4.22	4.44	4.65	4.81	4.93	5	5.04	5.05	5.05
Higher CI	5.95	5.94	5.94	5.96	6.01	6.1	6.26	6.49	6.79	7.16	7.59	8.06

Figure 10. Significant spatial clusters of suicide deaths that occurred in the state of California among residents of Santa Clara County, age 10–24, vital statistics, 2003–2015, Santa Clara County, CA.

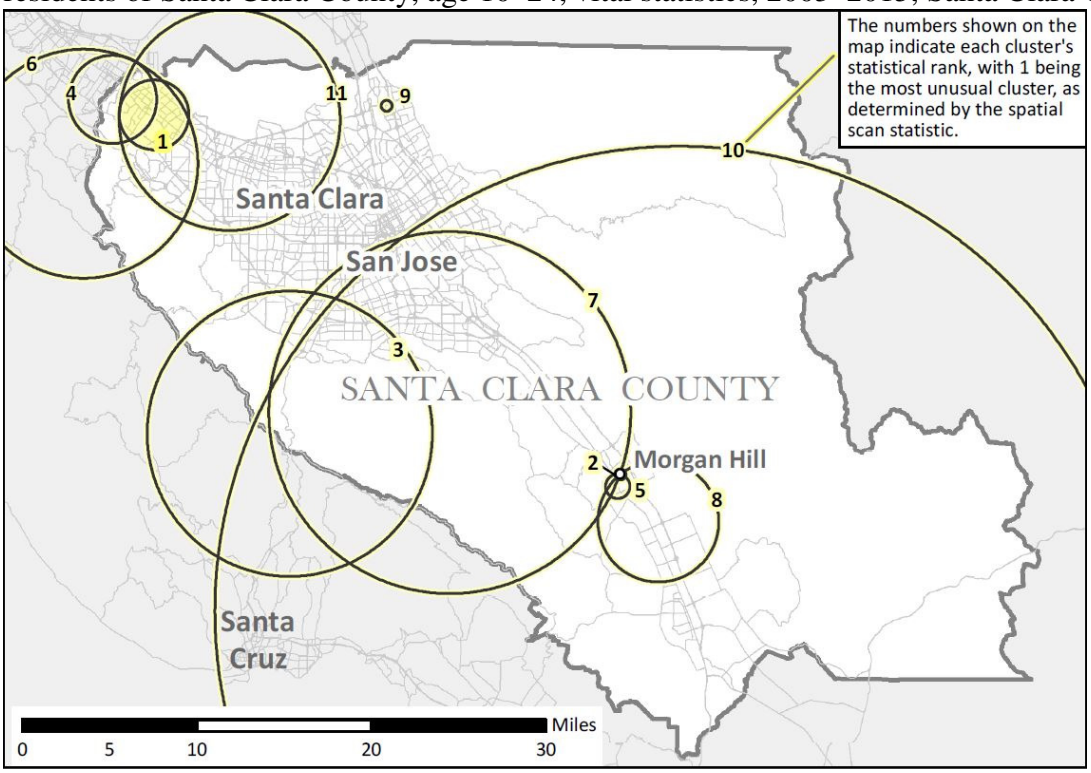


Figure 11. Number of Emergency Department visits for suicide attempt or self-injury (regardless of presence of suicidal ideation) by Santa Clara County residents ages 10–24, by year and quarter, emergency department data, 2005–2014.

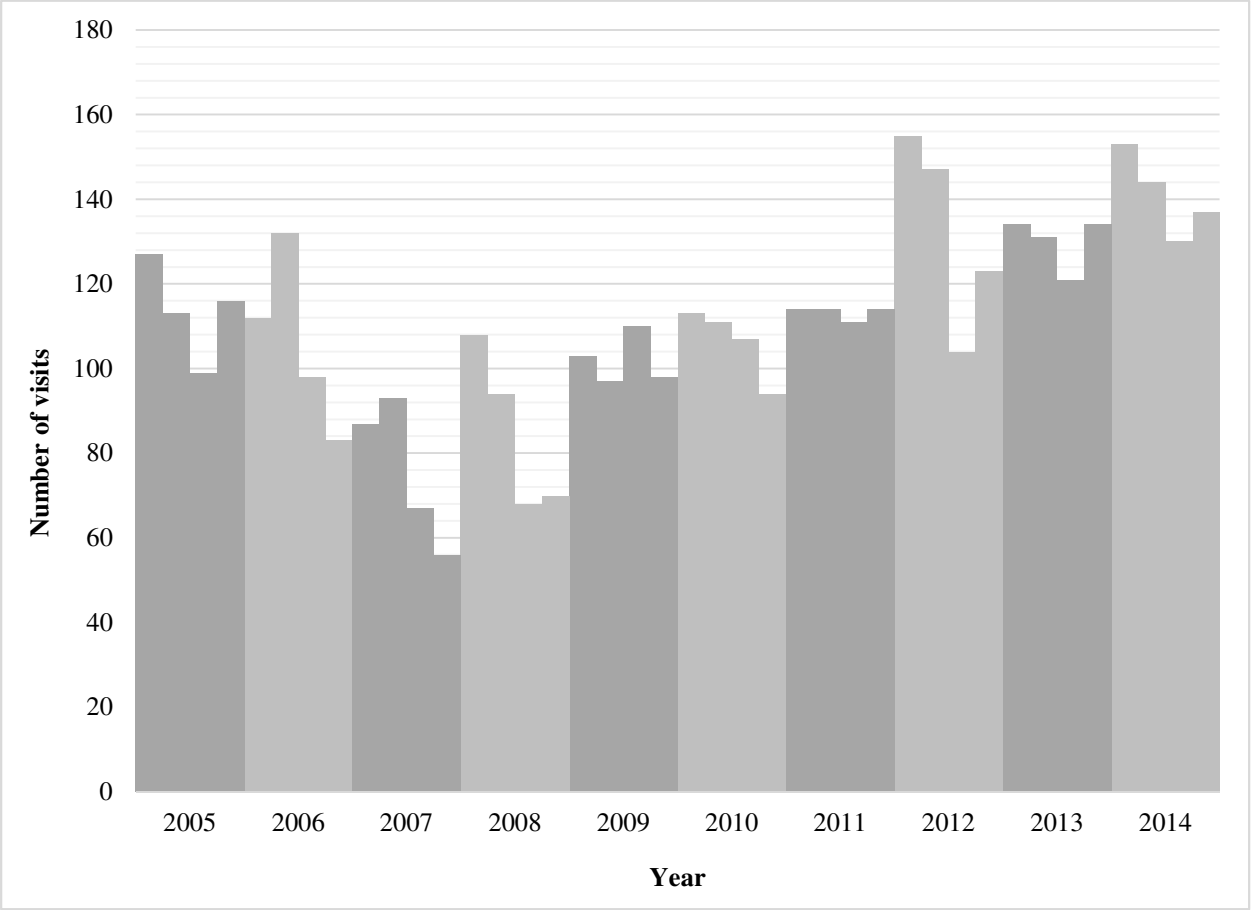
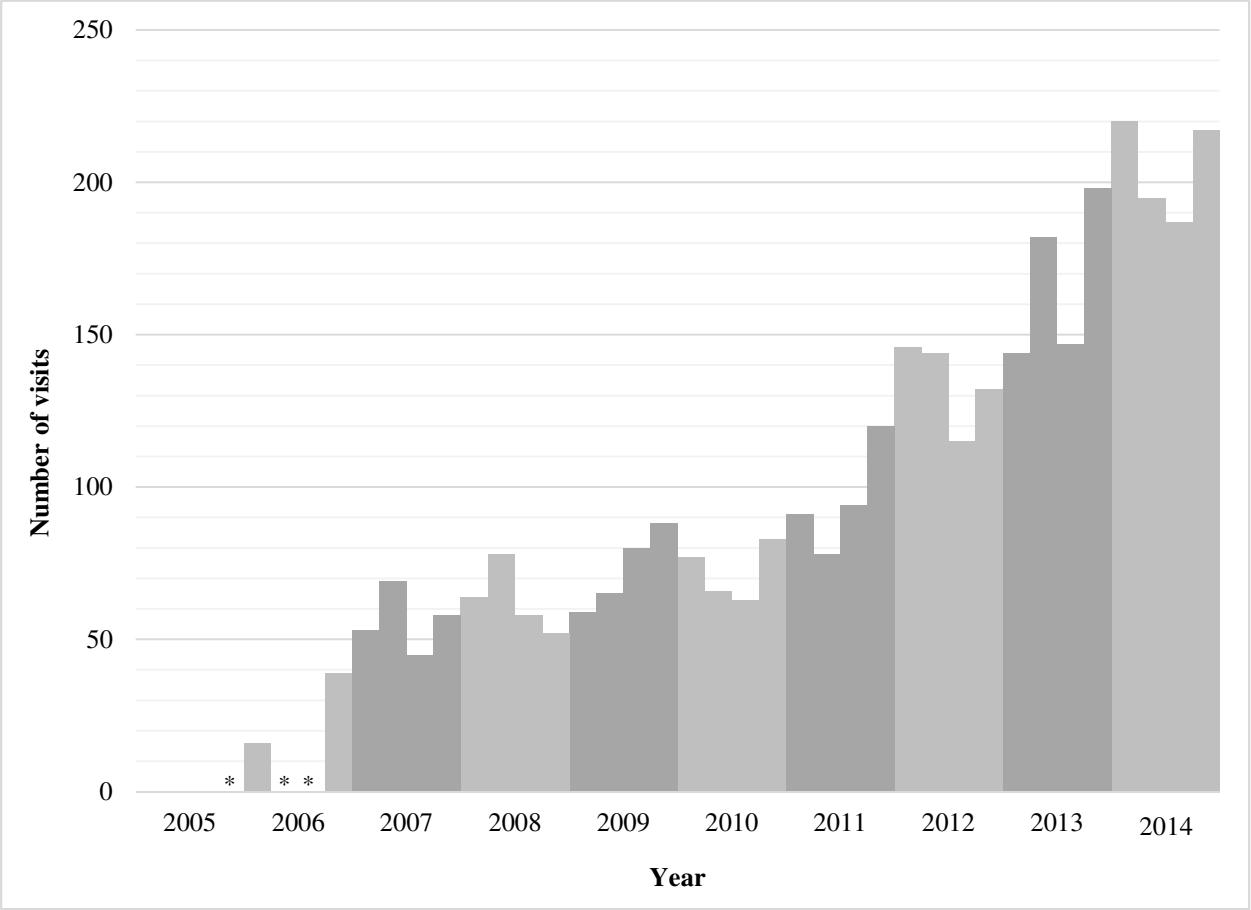
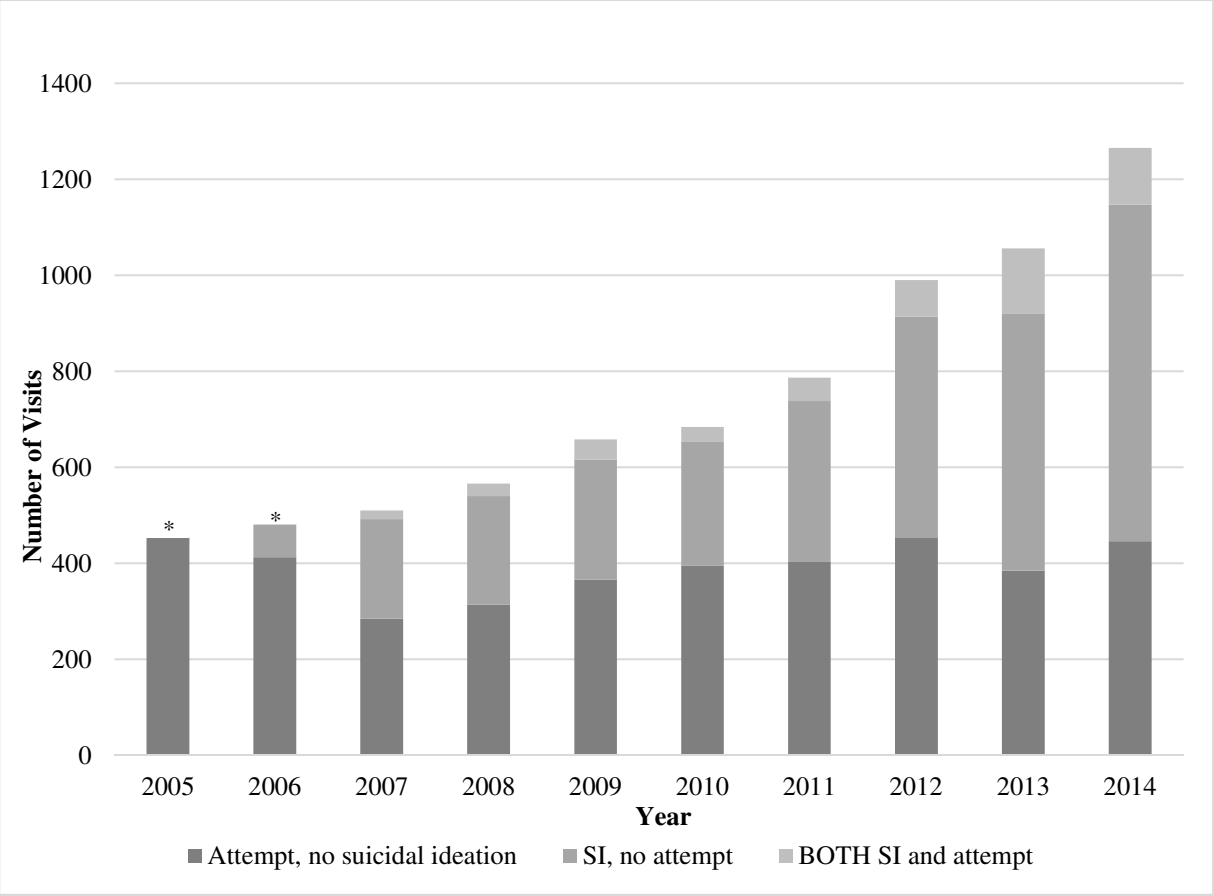


Figure 12. Number of Emergency Department visits with suicidal ideation (regardless of suicide attempt/self-injury) by Santa Clara County residents ages 10–24, by year and quarter, emergency department data, 2005–2014



*** = Count redacted because count ≤ 15**

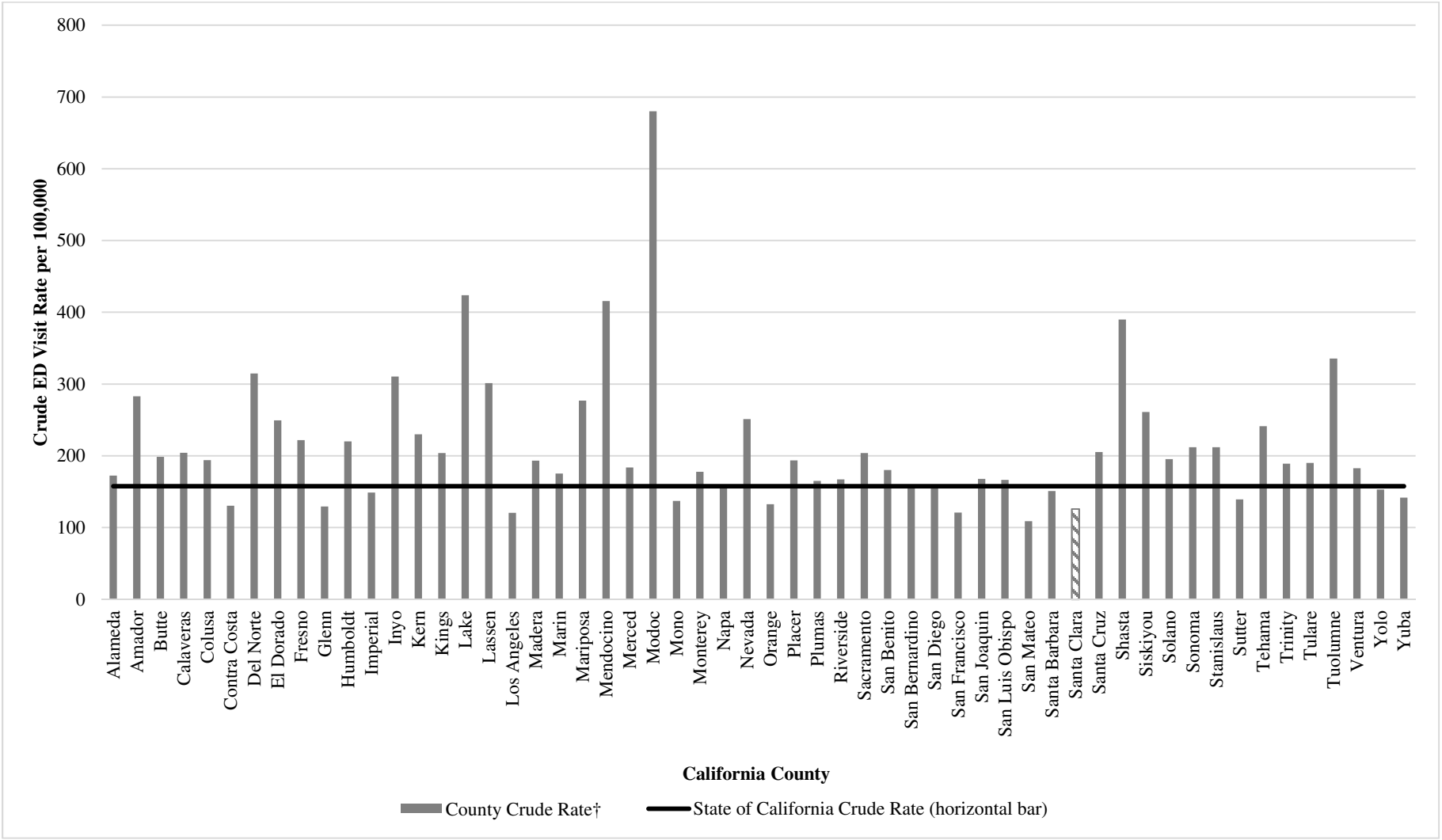
Figure 13. Number of Emergency Department visits for suicide attempt/self-injury, suicidal ideation, and both, by Santa Clara County residents ages 10–24, by year, emergency department data, 2005–2014.



SI=suicidal ideation

*** = Count redacted because count ≤ 15**

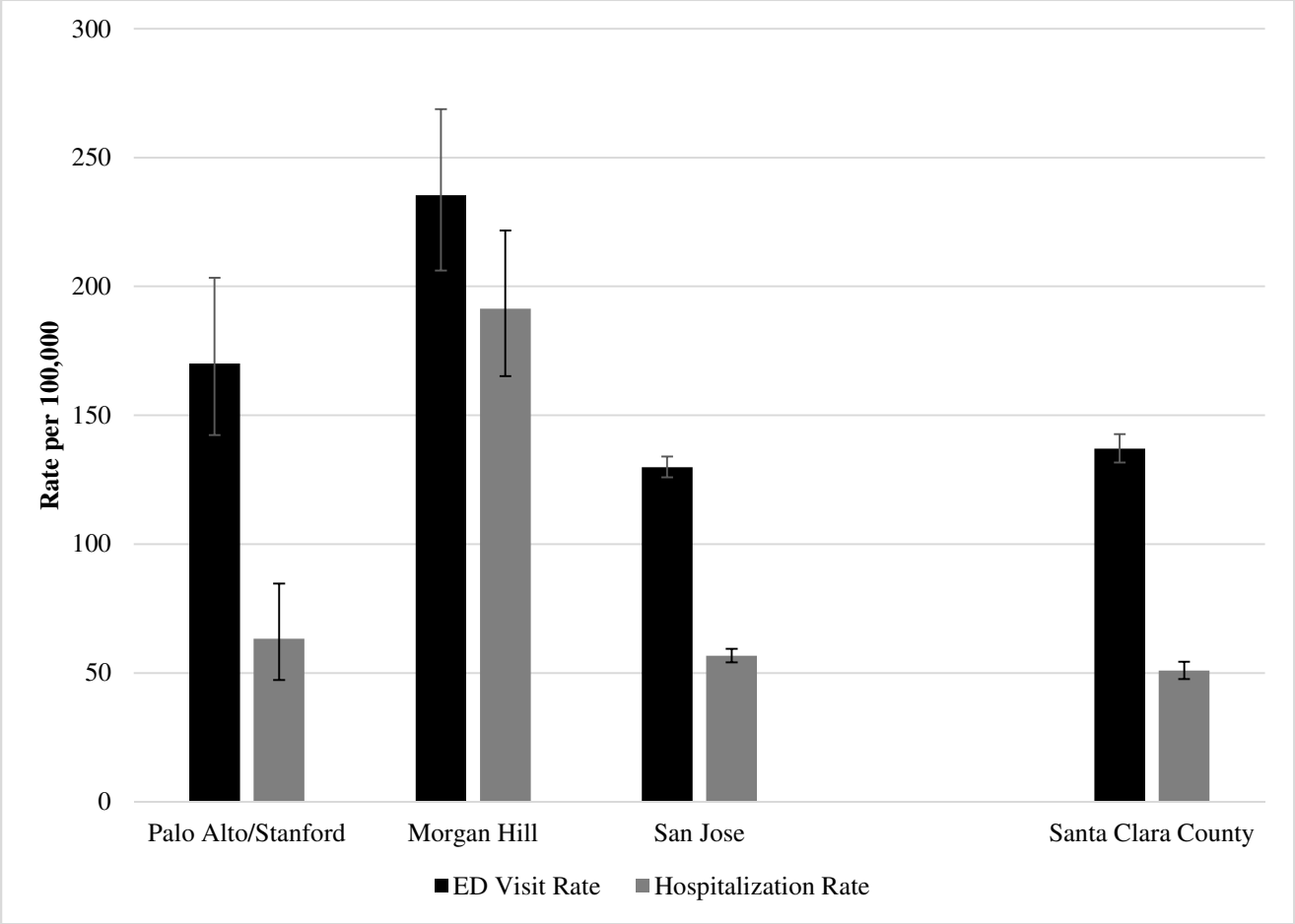
Figure 14. Crude rate of suicide attempt/self-injury ED visits among youth, ages 10–24, by California County of residence, California Department of Public Health EpiCenter Data, 2006–2014.*



*Counties with visit count <20 not shown, as calculated rates can be unreliable

†Santa Clara County highlighted with diagonal lines

Figure 15. Crude suicide attempt/self-injury ED visit and hospitalization rates (with 95% confidence intervals), Palo Alto/Stanford, Morgan Hill, San Jose, and Santa Clara County residents, ages 10–24, emergency department and patient discharge data, 2006–2014



* Patients were assigned city residence based on zip codes and therefore may not be an exact match for those cities

Figure 16. Number of suicide- or self-injury-related hospital admissions (regardless of presence of suicidal ideation) by Santa Clara County residents ages 10–24, by year and quarter, patient discharge data, 2004–2014.

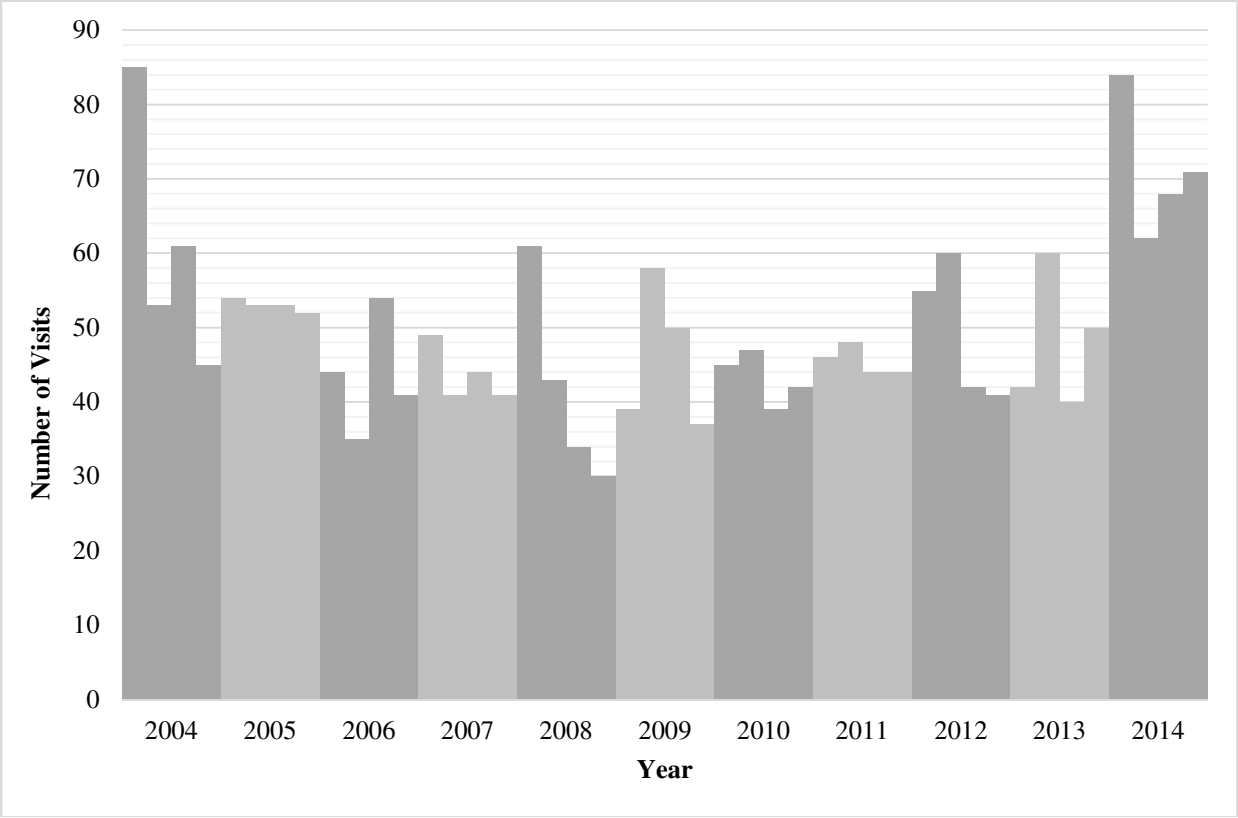


Figure 17. Number of hospital admissions for suicidal ideation (regardless of suicide attempt/self-injury) by Santa Clara County residents ages 10–24, by year and quarter, patient discharge data, 2004–2014.

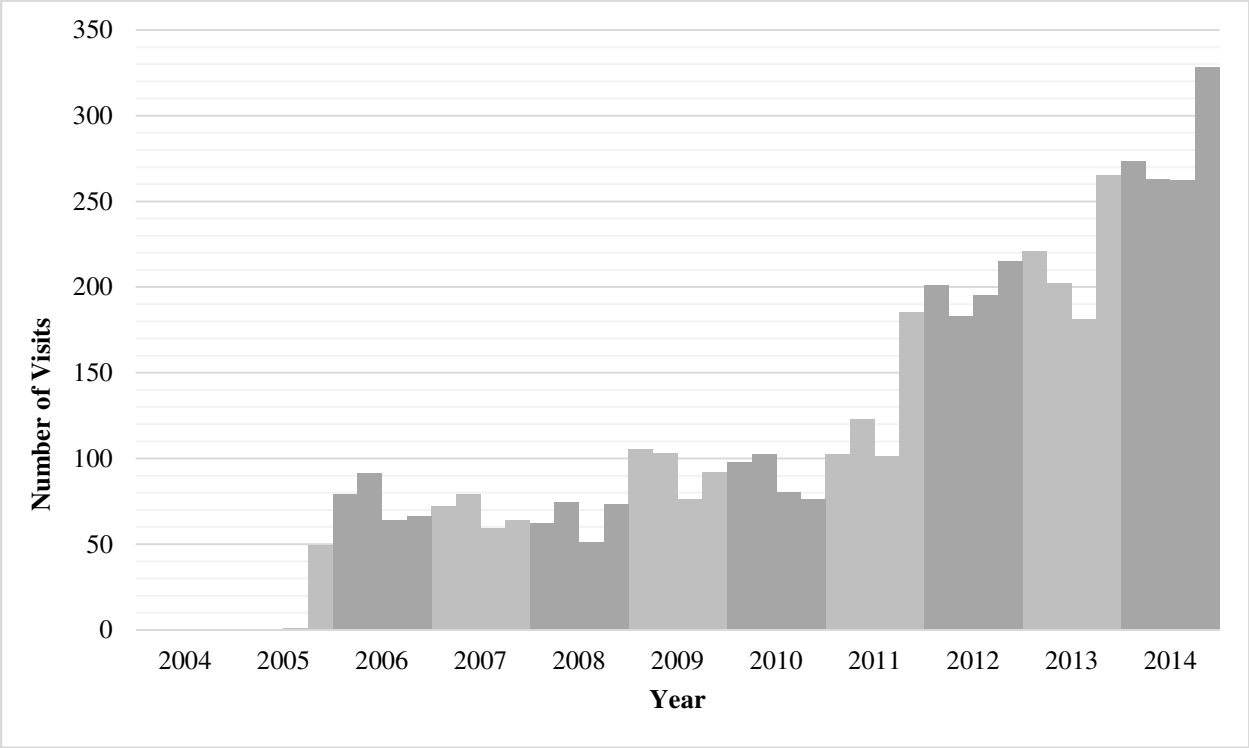
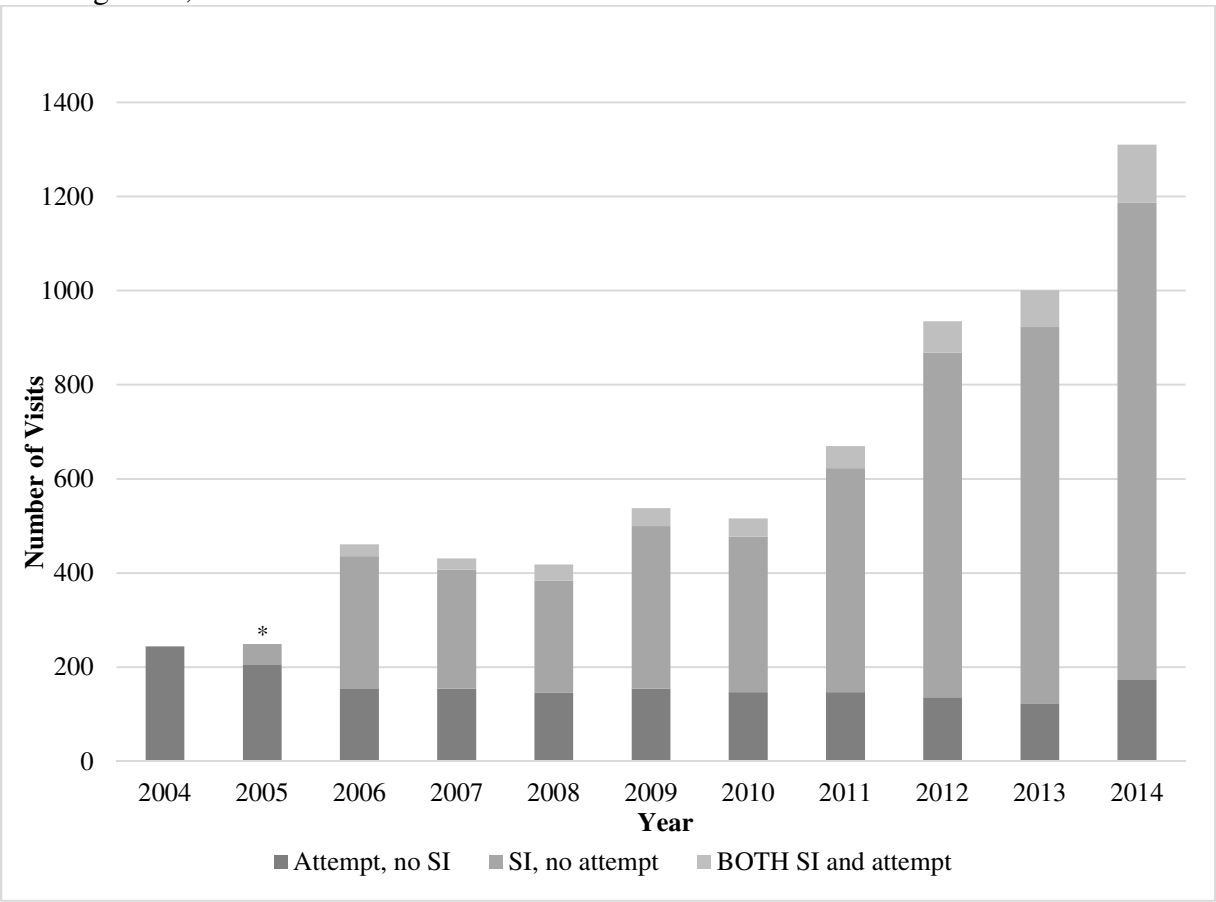


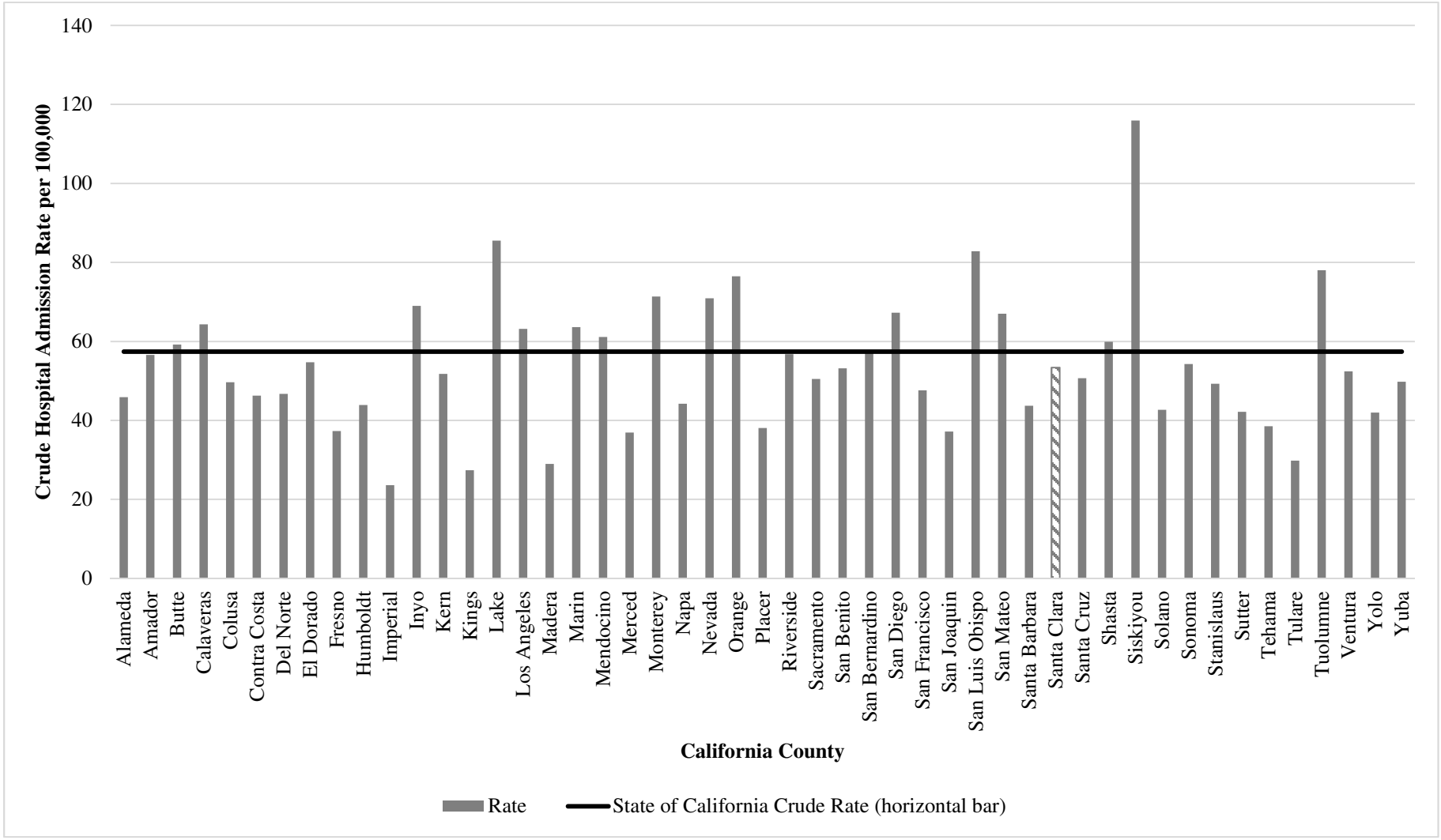
Figure 18. Number of hospital admissions for suicide attempt/self-injury, suicidal ideation, and both, in Santa Clara County or outside of the county by Santa Clara County residents ages 10–24, patient discharge data, 2004–2014.



SI=suicidal ideation

*** = Count redacted because count ≤ 15**

Figure 19. Crude rate of hospitalization for suicide attempt/self-injury among youth, ages 10–24, by California County of residence, California Department of Public Health EpiCenter Data, 2006–2014.*



*Counties with admission count <20 not shown, as calculated rates can be unreliable

†Santa Clara County highlighted with diagonal lines

Figure 20. Weighted prevalence of past year suicidal ideation among public high school students in Santa Clara County, by school district, California Healthy Kids Survey, 2013–2014 school year.

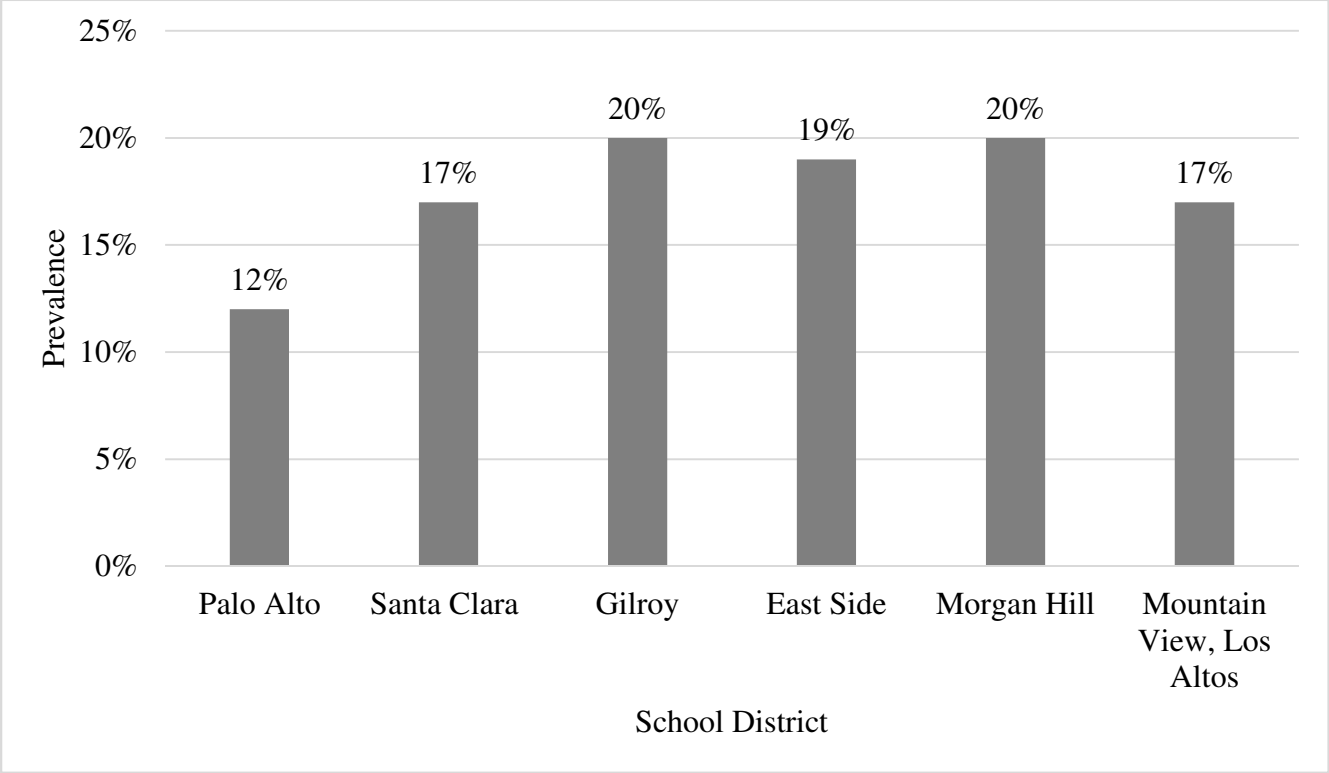
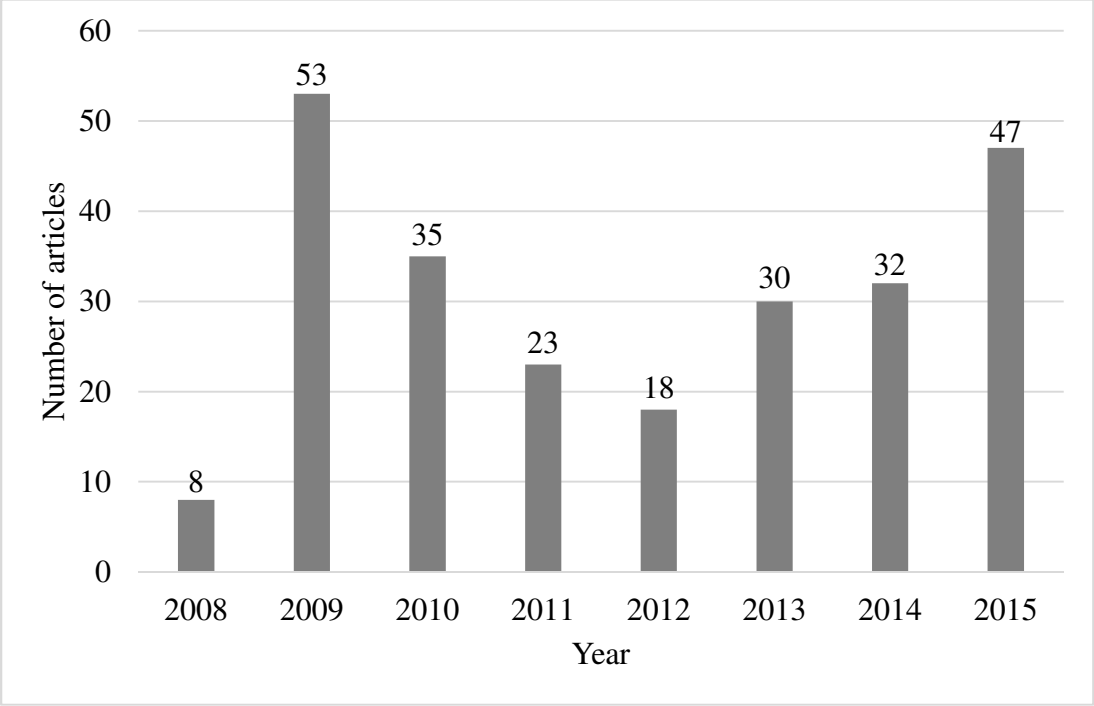


Figure 21. Number of news articles about suicide meeting media scan inclusion criteria* by year, 2008–2015.



*Inclusion criteria: article reporting on specific suicide death occurring in Palo Alto, Santa Clara County, or the Greater Bay Area during 1/1/2008–12/31/2015 (excluding police/crime blotters, Op-Eds, letters to the editor, obituaries, and articles about murder-suicide or about suicide prevention in general)

Appendix A – Project Safety Net Community Survey

2016 PSN Community Survey

Q1 Project Safety Net Collaborative Community Survey

INTRODUCTION Project Safety Net (www.psnpaloalto.org) is committed to providing opportunities for community members to share information that will help shape recommendations to improve youth suicide prevention and youth well-being efforts. This survey will take 15-20 minutes to complete. The first set of questions will help us understand who is completing this survey. The second group of questions will help us understand your knowledge, perceptions, and beliefs regarding youth suicide.

Youth suicide can be a sensitive and difficult topic to discuss. If you find yourself struggling emotionally with responding to the survey questions, please STOP COMPLETING THE SURVEY and CALL 1-855-278-4204, Santa Clara County Suicide and Crisis hotline.

Before you start: Have you already completed this survey – online, by phone or paper survey?

☐ **YES**, I previously completed this survey (*Thank you for your previous submission! You do not need to complete today's paper survey! Please fold and turn in.*)

☐ **NO**, I have not previously completed this survey. (*Thank you for completing today's paper survey*)

Q2 Section I: Demographics This section will help us understand who is completing this survey.

Q3 **Do you live in Palo Alto?**
☐ Yes ☐ No, but I work in Palo Alto ☐ No

Q4 **How old are you?**
☐ 13-15 ☐ 16-19 ☐ 20-27

Q5 **What is your highest level of education?**
☐ Current Middle School Student ☐ Current High School Student

Q6 **What is your ethnicity?**
☐ Hispanic or Latino ☐ Not Hispanic or Latino

Q7 **What is your race?** Mark one or more races to indicate what you consider yourself to be. Please mark all that apply.

☐ American Indian or Alaska Native
☐ Asian Chinese
☐ Asian Indian
☐ Asian Japanese
☐ Asian Vietnamese
☐ Asian Other _____
☐ Black or African American
☐ Native Hawaiian or Other Pacific Islander
_____
☐ White

Q8 **What is your gender?**
☐ Female
☐ Male
☐ Transgender
☐ Gender Diverse
☐ Other _____

Q9 **How would you describe your sexual orientation?** (Please select all that apply.)

☐ Bisexual ☐ Lesbian ☐ Questioning/Don't Know
☐ Gay ☐ Pansexual ☐ Other
☐ Heterosexual/Straight ☐ Queer _____

Q10 **What is your profession?** (for this paper student survey only – adult options have been removed)

☐ Non-working Student

Q11 **Are you a parent of a child who attends/attended Palo Alto schools?**

☐ No (for this paper student survey only – adult options have been removed)

Q12 **Are you an active member of Project Safety Net Collaborative?**

☐ No ☐ Currently active ☐ Formerly active

Q13 **Have you taken QPR suicide prevention training?**

☐ Yes, within past 12 months ☐ No
☐ Yes, withing past 2 years ☐ I am unfamiliar with QPR
☐ Yes, more than two years ago

Q14 II. **KNOWLEDGE, ATTITUDES, AND PERCEPTIONS REGARDING YOUTH SUICIDE**

The following questions will help us understand your knowledge, attitudes and perceptions regarding youth suicide in Palo Alto.

Q15 **How strongly do you agree with the following statements?**

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Youth suicide is a current problem in Palo Alto					
Suicide is preventable					
Suicide is bound to happen					
Suicide is shameful, something to be hidden					
I am comfortable talking about suicide with my family and friends					
I would recognize if a friend or family member was thinking about killing themselves					
I know how and where to get help for a friend or family member who is thinking about killing themselves					
Depression is a medical disorder that responds to treatment					
I would support a friend or family member who decided to seek professional help for depression					
I would support a friend or family member who decided to seek professional help for suicidal thoughts					
I would be comfortable telling a friend or family member if I felt I needed professional help for depression					

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I would support a friend or family member who decided to seek professional help for suicidal thoughts					
If I am concerned that a friend or family member is considering suicide, I would ask them – it will not plant the idea in their mind					

Q17 **How strongly do you think MOST OTHER STUDENTS agree with the following statements?**

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Youth suicide is a current problem in Palo Alto					
Suicide is preventable					
Suicide is bound to happen					
Suicide is shameful, something to be hidden					
I am comfortable talking about suicide with my family and friends					
I would recognize if a friend or family member was thinking about killing themselves					
I know how and where to get help for a friend or family member who is thinking about killing themselves					
Depression is a medical disorder that responds to treatment					
I would support a friend or family member who decided to seek professional help for depression					
I would support a friend or family member who decided to seek professional help for suicidal thoughts					
I would be comfortable telling a friend or family member if I felt I needed professional help for depression					
I would support a friend or family member who decided to seek professional help for suicidal thoughts					
If I am concerned that a friend or family member is considering suicide, I would ask them – it will not plant the idea in their mind					

Q18 **Using a scale of 0-100 where 0 is "not at all related" and 100 is a determining relationship, how much do you think each of the following risk factors contribute to the phenomenon of youth suicide in Palo Alto? (please make an "x" for your response)**

Academic distress or pressure	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Alcohol, drug or substance abuse	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Bullying	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Childhood trauma	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Depression/mental health issues	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Disconnected and socially isolated	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Family or friend with history of suicide	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Family or cultural pressures	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Issues pertaining to gender identity or sexual orientation	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Lack of access to mental health care	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Life challenges	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Living with intellectual, mental, or physical disabilities	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Poor coping skills	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Sleep deprivation or disorders	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Suicide "contagion"	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Family economic distress	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Violence or sexual assault	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Unsafe reporting by media	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100
Other:	0….. 10….. 20….. 30….. 40….. 50….. 60….. 70….. 80….. 90…. 100

_____

_____

Q19 **How strongly do you support the following suicide prevention efforts in Palo Alto?**

	Not At All Supportive	Not Supportive	Neutral or Undecided	Supportive	Very Supportive
Means restriction at the tracks					
School-based efforts to reduce unnecessary stress					
Efforts to improve access to mental health providers					
Efforts to strengthen culturally tailored mental health services for diverse communities					
Require suicide prevention training for all who work with youth					
Efforts to increase youth input and involvement in their schools and community					
Provide "Parenting" Education					
Provide community-based youth suicide prevention programs					
Media compliance with recommendations for safe reporting of suicide					
A local public information campaign to reduce stigma, share resources, and encourage help-seeking behaviors					
Mini-grants to community organizations and local groups to implement youth suicide prevention activities and trainings					

Q20 **What strengths are currently present in Palo Alto that offer the greatest hope and protections against youth suicide?** _____
_____

Q21 **What are your top five sources of information on Palo Alto's youth suicide efforts?**

1 _____
2 _____
3 _____
4 _____
5 _____

Q22 Additional comments: _____
_____
_____

The Project Safety Net Collaborative thanks you for taking the time to complete this survey.
The information collected will help shape recommendations to improve youth suicide prevention and youth well-being efforts.

Youth suicide can be a sensitive and difficult topic to discuss. If you find yourself struggling emotionally after completing this survey, please CALL 1-855-278-4204, Santa Clara County Suicide and Crisis hotline.

Appendix B – Suicide Rates and Confidence Intervals for Figure 1

Table B.1, Appendix B. Crude suicide rate by two year periods, among youth, ages 10–24, 2003–2014, CDC WONDER.

	United States		California		Santa Clara County	
	Rate	**95% CI**	**Rate**	**95% CI**	**Rate**	**95% CI**
2003–2004	7	(6.8–7.1)	5.2	(4.9–5.6)	5.6	(4.0–7.7)
2005–2006	6.9	(6.8–7.1)	5	(4.6–5.3)	4.8	(3.3–6.8)
2007–2008	6.9	(6.7–7.0)	4.9	(4.5–5.2)	4.8	(3.3–6.7)
2009–2010	7.4	(7.2 –7.5)	5.4	(5.1–5.8)	4.8	(3.3–6.8)
2011–2012	8	(7.8–8.1)	5.5	(5.1–5.8)	6.2	(4.5–8.4)
2013–2014	8.3	(8.2–8.5)	5.7	(5.4–6.1)	6.1	(4.4–8.2)