

Undetermined risk factors for suicide among youth, ages 10–24 — Santa Clara County, CA, 2016

Epi-2 Report

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention and the Substance Abuse and Mental Health Services Administration. The findings in this report are preliminary and are subject to change.

Abstract

From February 15, 2016 through February 29, 2016, staff from the Centers for Disease Control and Prevention (CDC) and the Substance Abuse and Mental Health Services Administration (SAMHSA), in conjunction with the Santa Clara County Public Health Department (SCCPHD), conducted an Epi-Aid to explore characteristics and trends of fatal and non-fatal suicidal behavior among youth, examine factors associated with fatal and non-fatal suicidal behavior, inventory local youth suicide prevention policies and activities, examine media reporting of suicide in the region, and identify prevention strategies. In the field, existing, secondary data from available quantitative databases were obtained. Data sources included the Santa Clara County Vital Records Business and Information System (VRBIS) for 2005–2015, data abstracted from Medical Examiner reports from 2003–2015, data obtained from CDC’s Wide-ranging Online Data for Epidemiologic Research (CDC WONDER) from 2003–2014, and the California Health Kids Survey (CHKS) from the 2013–2014 school year. The crude suicide rate in Santa Clara County for youth age 10 to 24 from 2003–2014 was 5.4 per 100,000. This was similar to the crude suicide rate for the State of California for the same time period (5.3 per 100,000). Data from 232 Medical Examiner reports from 2003–2015 were abstracted. The most common means of suicide were hanging, suffocation (47.4%, n=110), followed by firearm (21.6%, n=50). Almost all youth deaths by suicide (92.2%, n=214) had precipitating circumstances indicated in the Medical Examiner reports. Among youth suicides with reported precipitating circumstances, common reported precipitating factors included a recent crisis (53.7%, n=115), current mental health problem (45.8%, n=98), history of treatment for mental health problems (41.1%, n=88), and history of suicidal thoughts or ideation (34.6%, n=74). Unweighted CHKS data from the 2013–2014 school year were used to describe non-fatal suicidal behavior. Among public high school students in four school districts, the prevalence of serious consideration of suicide in the 12 months prior to survey completion was found to range from 12.2% to 20.1%. Preliminary recommendations based on initial findings are made. Data analyses are ongoing and a comprehensive final report is in progress.

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Background

From May 2009 through January 2010, five known suicides occurred among incoming, current, or alumni members 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 members of two high schools in the same school district in Santa Clara County, California. In response, the California Department of Public Health (CDPH) requested epidemiological assistance to understand youth suicide in Santa Clara County, and, data permitting, in the affected cities and school districts. CDPH, the Santa Clara County Public Health Department (SCCPHD), and local community stakeholders were interested in using epidemiologic methods to explore characteristics and trends of fatal and non-fatal suicidal behavior among youth, examine factors associated with fatal and non-fatal suicidal behavior, inventory local youth suicide prevention policies and activities, examine media reporting of suicide in the region, and identify prevention strategies that can be used at the school-, community-, and county-level. 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.

The objectives of this Epi-Aid were to:

1. Characterize the epidemiology of, and trends in, fatal suicidal behaviors among youth occurring from 2003 through 2015¹ in Santa Clara County, California; and
 - a. Data permitting, compare characteristics at multiple levels, such as school districts and cities.

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.

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- level.

Field Portion

On February 15, 2016 EIS Officers, Drs. Amanda Garcia-Williams, Julie O'Donnell, and Erica Spies; CDC/DVP 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.

Methods Used in the Field

This public health response used existing, secondary data from available quantitative databases obtained by the Santa Clara County Public Health Department and from publically available sources. Preliminary analyses were conducted using data from the Vital Records Business and Information System (VRBIS) dataset from 2005–2015, data abstracted from Medical Examiner reports from 2003–2015, data from the California Healthy Kids Survey (CHKS) from 2013–2014, and publically available data obtained from CDC's Wide-ranging Online Data for Epidemiologic Research (CDC WONDER) from 2003–2014.² All results included in this Epi-2 Report are preliminary and subject to change. This

² Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999–2014 on CDC WONDER Online Database, released 2015. Data are from the Multiple Cause of Death Files, 1999–2014, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at <http://wonder.cdc.gov/ucd-icd10.html>

preliminary trip report focuses on objective one of this Epi-Aid and does not discuss the media scan or suicide prevention policy/program inventory.

Frequencies and proportions were calculated to describe characteristics of suicide decedents. To ensure confidentiality and limit the possibility of identification of an individual, data were suppressed when a cell size was less than 10 individuals. Epidemic curves were constructed to examine trends over time in counts and rates. Per the *2005 CDC-ATSDR Data Release Guidelines and Procedures for Re-release of State-Provided Data*, data may not be presented even with a cell size larger than 10 depending on topic sensitivity, variable format (e.g., categorical or continuous), geographic level of detail, and population/subgroup denominator size. Unweighted data from the 2013–2014 school year CHKS were examined using Fisher’s Exact Tests to understand factors associated with non-fatal suicidal behavior and mental distress among public high school students. 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.

Rates of suicide at the county, state, and national levels were calculated through CDC WONDER. CDC WONDER does not calculate rates when the numerator is less than 20 due to unreliability and instability of the estimate.³ An unreliable/unstable rate, calculated with less than 20 cases, can make distinguishing true change in rates difficult and can lead to incorrect conclusions. To overcome the unreliability/instability of rates calculated with less than 20 cases, multiple years of data were combined.

Preliminary Results from the Field

Preliminary analyses were conducted using data from the Vital Records Business and Information System (VRBIS) dataset from 2005–2015, data abstracted from Medical Examiner reports from 2003–2015, publically available data obtained CDC WONDER from 2003–2014, and data from the California Healthy Kids Survey from 2013–2014.

³ National Center for Health Statistics. Vital statistics of the United States: Mortality, 1999, Technical Appendix. Accessed at: http://wonder.cdc.gov/wonder/sci_data/mort/mcmort/type_txt/mcmort05/techap99.pdf

Two different case definitions were used to examine CDC WONDER data and to examine vital statistics and medical examiner data. CDC WONDER bases analyses of rates on place of residence, and rates were not available based on place of death at the time of this investigation. Vital statistics and Medical Examiner data were analyzed based on place of death. This case definition was used so that data from vital statistics aligned with data abstracted from Medical Examiner reports. The Epi-Aid was requested to investigate suicides among youth in Santa Clara County, with the request made by the Santa Clara County Public Health Department. 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 are under the jurisdiction of the Santa Clara County Public Health Department are for individuals that died in Santa Clara County. CDC WONDER data were used, even though the case definition differed from the one used for vital statistics and Medical Examiner data, to permit the examination of suicide rates among Santa Clara County residents, and to allow for comparisons with other California counties, the State of California, and the United States. At the time of this investigation, CDC WONDER data to calculate rates by place of death were not available.

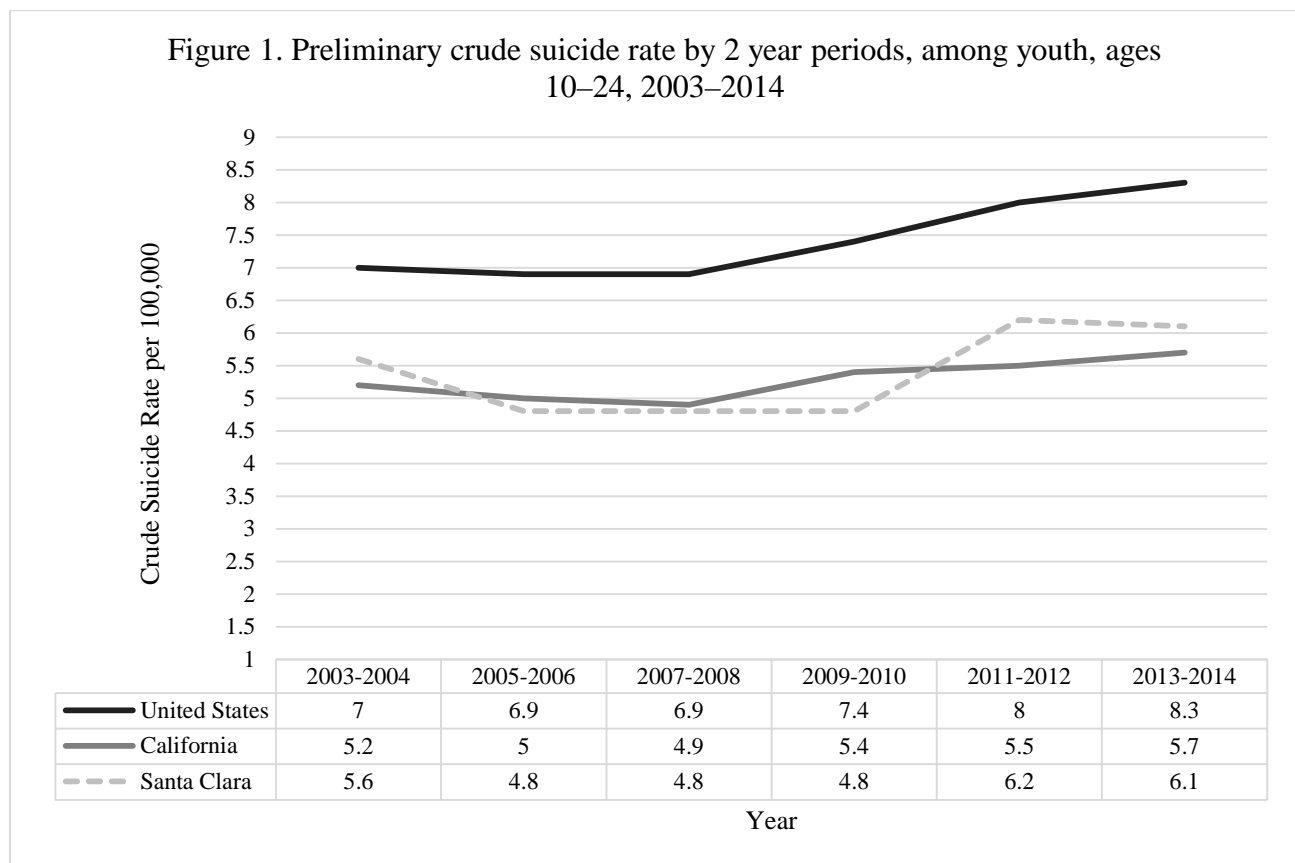
CDC WONDER

CDC WONDER was used to conduct a preliminary examination of characteristics and trends of suicide among residents of Santa Clara County from 2003 through 2014 and compare suicide rates to residents in other California counties, as well as to the state of California and the United States. To be included in these analyses the following case definition was used:

- Place of residence Santa Clara County
- Age 10 to 24
- ICD-10 Code of X60-X84 (Intentional self-harm)

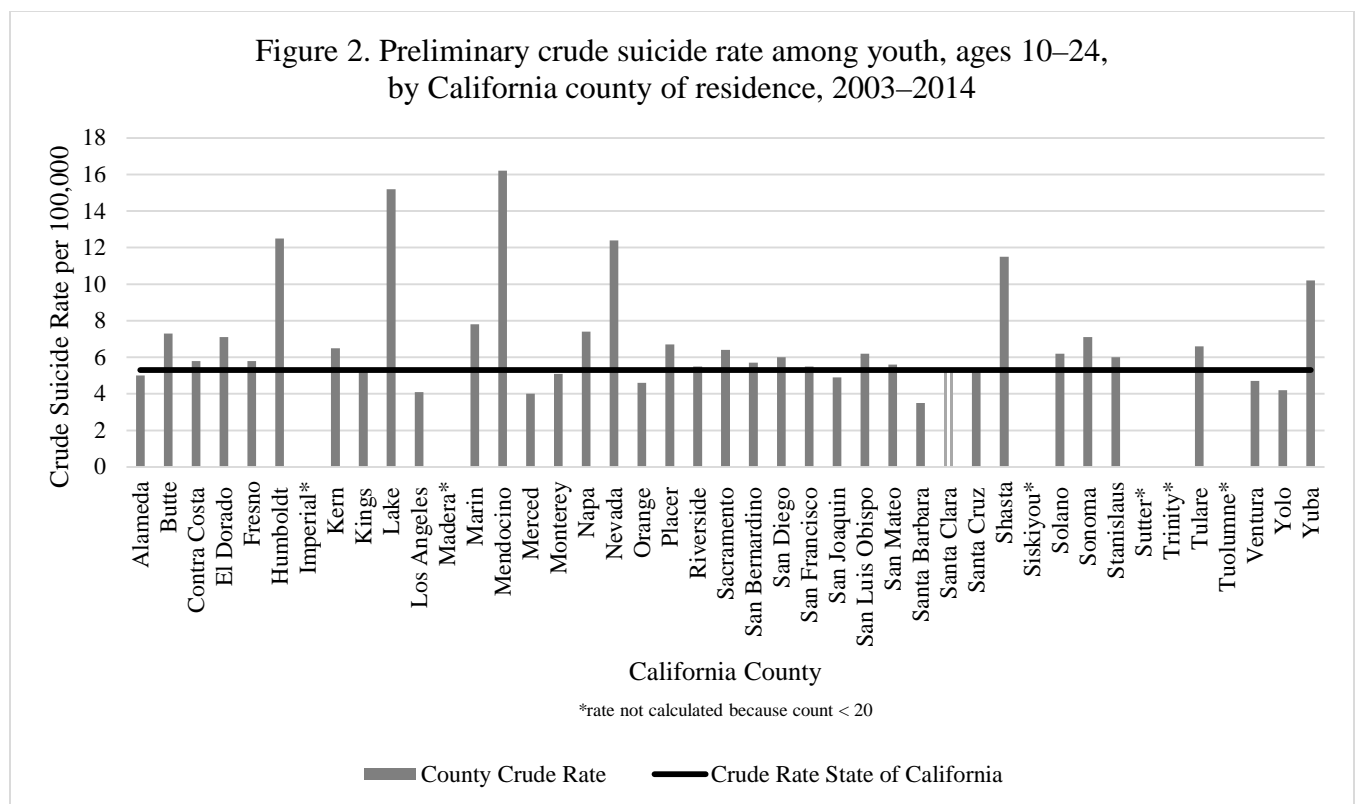
Data for 2015 are not currently available in CDC WONDER and therefore were not included.

Crude suicide rates for 2 year periods of time for youth aged 10 through 24 are presented in Figure 1. Years of data were combined to allow for the calculation of reliable and stable estimates. Since 2003–2004, the crude suicide rates in Santa Clara County, the state of California, and the United States for youth ages 10 to 24 have fluctuated. Across all time periods, the crude rate of suicide in Santa Clara County has been similar to the crude rate of suicide in California for youth ages 10 to 24. Additionally, the crude rate of suicide in Santa Clara County across all time periods has been consistently lower than the crude rate for the United States from 2003–2014.



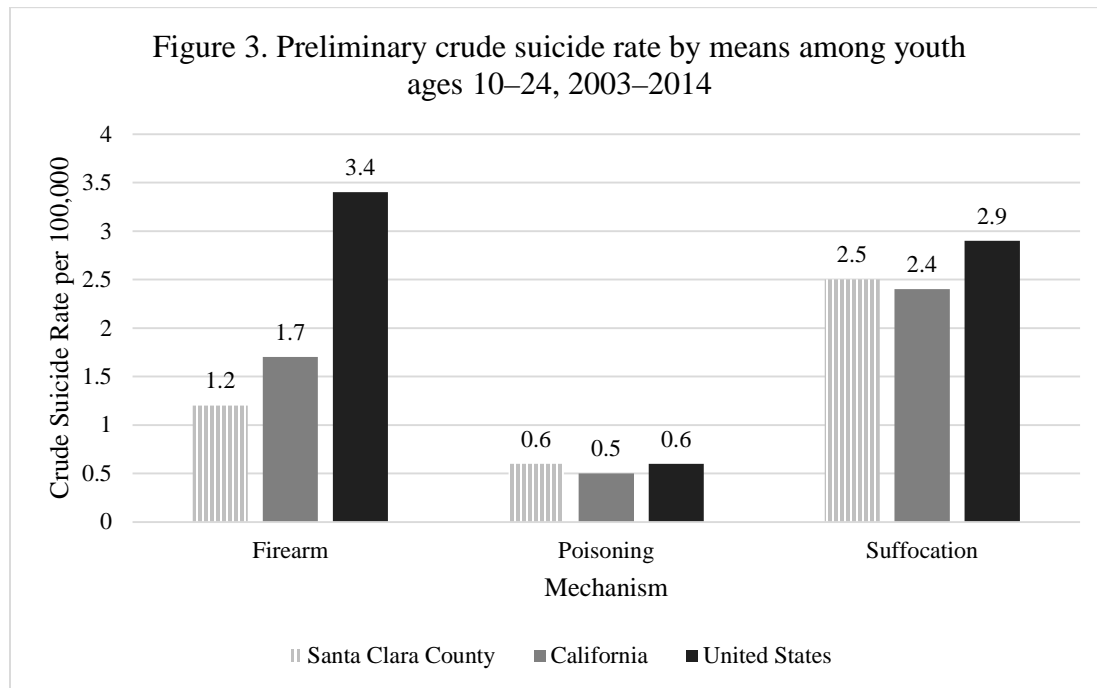
The crude suicide rate for youth in Santa Clara County was compared to other counties in the state of California (Figure 2). Multiple years of data, going back to 2003, were combined to allow for the calculation of reliable rates for counties with low counts. Calculation of rates for several counties was not possible due to low counts; these counties are indicated with an asterisk.

The crude suicide rate from 2003–2014 for youth aged 10 through 24 in Santa Clara County (5.4 per 100,000) was similar to the crude suicide rate for the State of California for the same time period (5.3 per 100,000), and similar to the neighboring counties of San Mateo (5.6 per 100,000), Santa Cruz (5.3 per 100,000), and Alameda County (5.0 per 100,000). Counties with the highest crude suicide rate among youth, ages 10 to 24, from 2003–2014 were Mendocino (16.2 per 100,000), Humboldt (12.5 per 100,000), Lake (15.2 per 100,000), Nevada (12.4 per 100,000), Shasta (11.5 per 100,000), and Yuba County (10.2 per 100,000). These counties were primarily in Northern California.



Crude suicide rates for youth aged 10 through 24 by means were also examined for Santa Clara County, the state of California, and the United States (Figure 3). Multiple years of data were combined to allow for the calculation of reliable rates for mechanisms with low counts. Crude rates were only calculated for the mechanisms of firearm, poisoning, and suffocation because the sample size for other mechanisms in Santa Clara County was less than 20. The crude rate of suicide by firearm for youth aged 10 through 24, from 2003–2014, in Santa Clara County (1.2 per 100,000) was lower than the crude rate

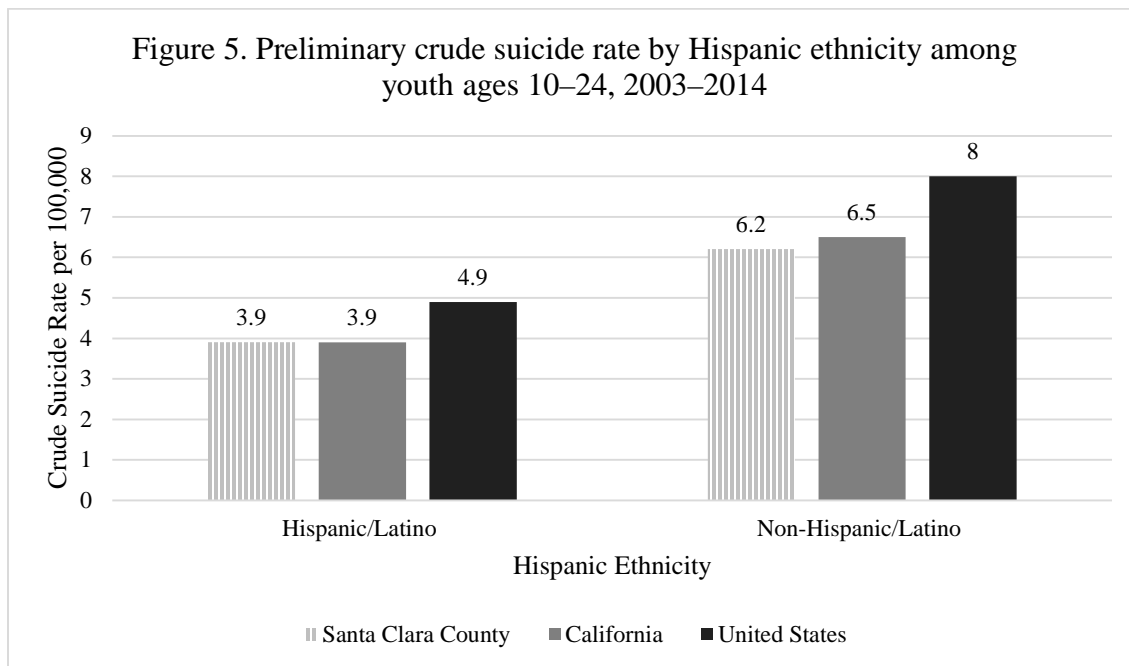
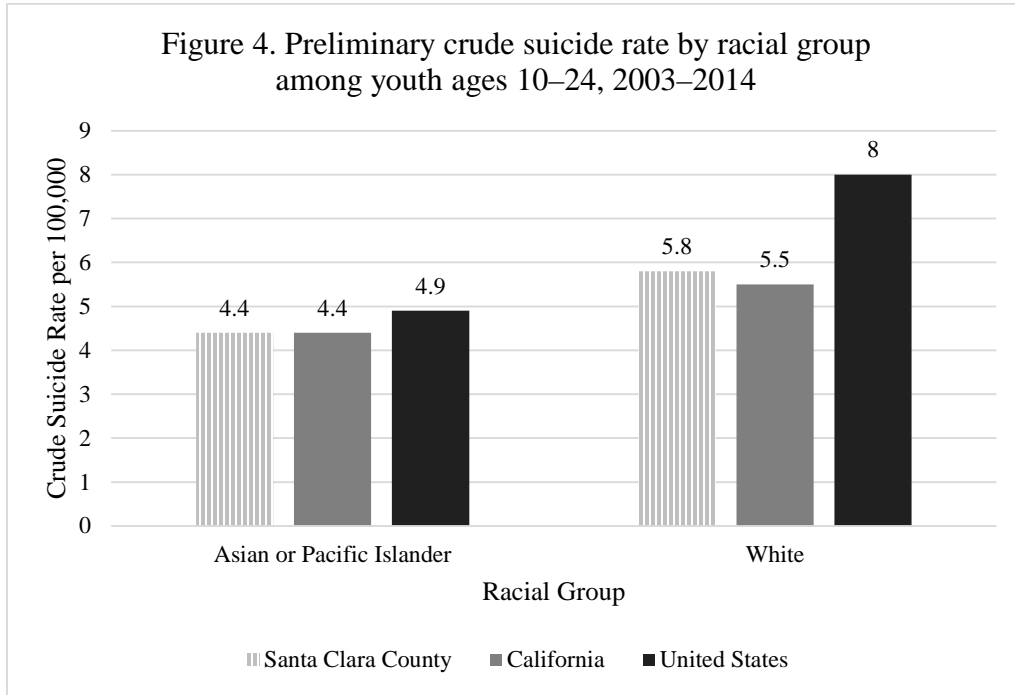
in the United States (3.4 per 100,000). The crude rate for suicide by poisoning and suffocation in Santa Clara County was similar to the state of California and the United States.



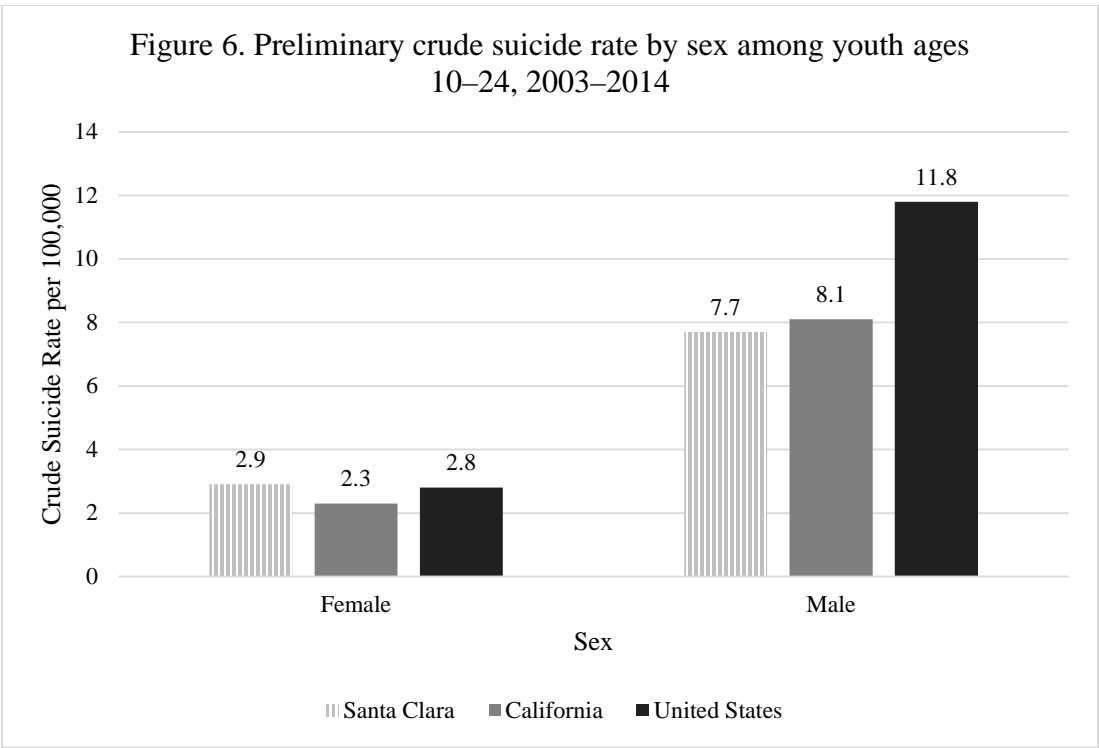
Crude suicide rates for youth aged 10 through 24 by racial group were also examined for Santa Clara County, the state of California, and the United States (Figure 4). Multiple years of data were combined to allow for the calculation of reliable rates for racial categories with low counts. Crude rates 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 in Santa Clara County was less than 20. Furthermore, CDC WONDER does not provide rates by race/ethnicity group; therefore it was only possible to examine race and ethnicity separately.

The crude suicide rate among Asian/Pacific Islanders aged 10 through 24 in Santa Clara County (4.4. per 100,000) was similar to the state of California (4.4 per 100,000) and the United States (4.9 per 100,000) during the years 2003–2014. The crude suicide rate for white decedents aged 10 through 24 in Santa Clara County (5.8 per 100,000) was lower than the crude rate for the United States (8 per 100,000) during the same time period. The crude suicide rate in Santa Clara County for Hispanic/Latino youth, of

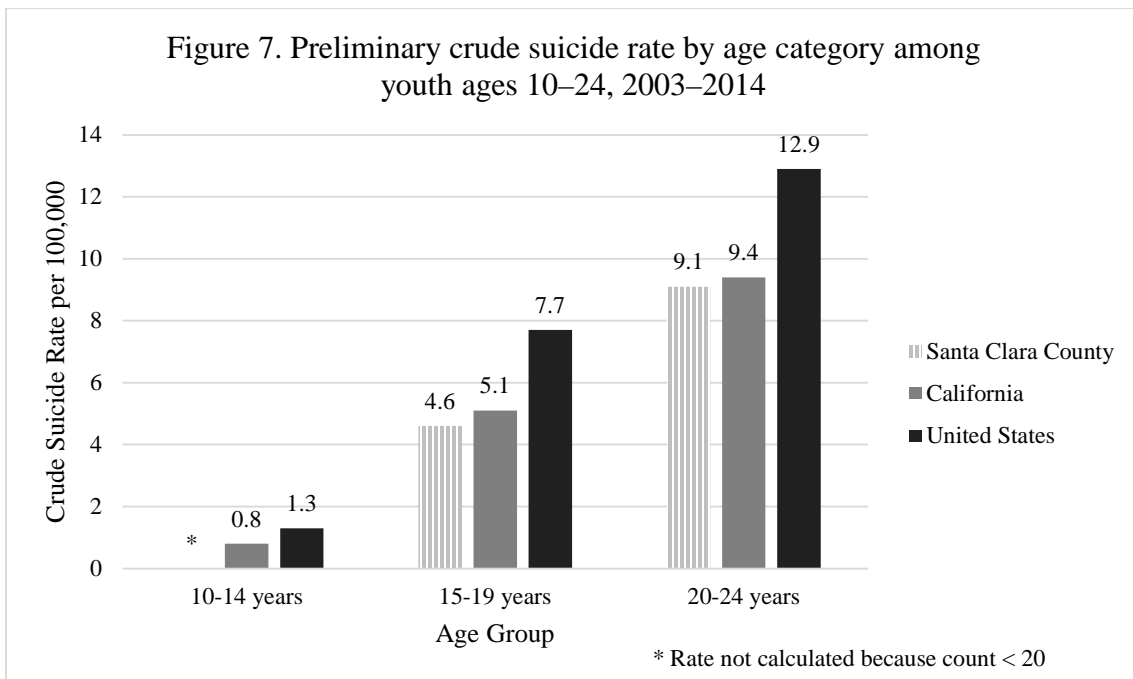
all races, was similar to the state of California and lower than the United States (Figure 5). The crude suicide rate in Santa Clara County for non-Hispanic/Latino youth, of all races, was also similar to the state of California and lower than the United States.



The crude suicide rate by biological sex was examined for Santa Clara County, the state of California, and the United States (Figure 6). Multiple years of data were combined to allow for the calculation of stable rates. The crude suicide rate for male youth was greater than the rate for female youth in Santa Clara County, the state of California, and the United States. The crude rate of suicide among male youth in Santa Clara County (7.7 per 100,000) is lower than the rate for the United States (11.8 per 100,000). The crude rate of suicide among female youth in Santa Clara County (2.9 per 100,000) is similar to the rate for the United States (2.8 per 100,000).



Finally, the crude suicide rate by 5 year age group was examined (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. The suicide rate is highest among those age 20–24 in Santa Clara County, California, and the United States. Overall, the suicide rate for youth in Santa Clara County, in both age groups, was lower than the suicide rate for youth in the United States.



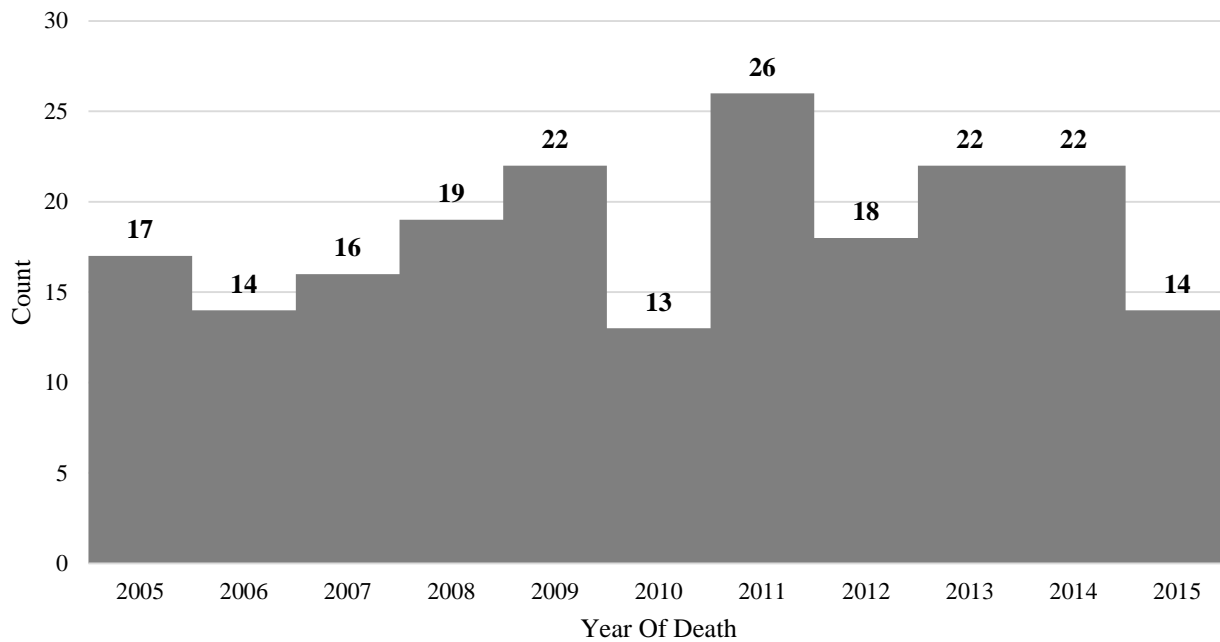
Vital Records Business and Information System (VRBIS)

VRBIS was used to characterize youth suicide decedents in Santa Clara County. To be included in this analysis, the decedent had to meet the following case definition:

- County of death listed as Santa Clara County,
- Age 10 to 24 years of age,
- Manner of death listed as suicide

Data from 2015 is preliminary and subject to change. Preliminary analyses of VRBIS data from 2005 through 2015 show there were a total of 203 suicides that occurred in Santa Clara County among youth ages 10 to 24 (Figure 8). Additional analyses are planned to include 2003 through 2004 vital statistics data to meet Objective 1 of this investigation. The average age of decedents was 20.2 years old (SD 2.9, Range 12–24), with 62.1% (n=126) of decedents age 20 to 24. Over three quarters of suicide decedents (76.4%, n=155) were male. Over a third (37.0%, n=75) were White, non-Hispanic; 27.1% (n=55) were White, Hispanic; 25.1% (n=51) were Asian, non-Hispanic; and 7.9% (n=16) were Black, non-Hispanic. Finally, 29.1% (n=59) of decedents were Hispanic, of any race.

Figure 8. Preliminary count of suicides that occurred in Santa Clara County among youth ages 10–24, 2005–2015 (n=203)



Medical Examiner Data

While the Epi-Aid team was in the field, Medical Examiner reports for suicides among youth ages 10 through 24 that occurred from 2003–2015 were systematically abstracted into an electronic database. To be included in the following analyses, the decedent had to meet the following case definition:

- Death occurred in Santa Clara County,
- Age 10 to 24 years of age
- Manner of death listed as suicide

Of the 235 reports reviewed, 232 were for decedents who died within Santa Clara County. All analyses were restricted to decedents that died within Santa Clara County to meet the case definition. The number of Santa Clara County decedents' cases abstracted from medical examiner data (n=232) does not match the number of cases presented previously from vital statistics (n=203) because vital

statistics data from 2005–2015 were examined, while medical examiner reports from 2003–2015 were abstracted. The present results are preliminary, and subsequent analyses of vital statistics data will extend to include data from 2003–2015.

Preliminary analyses show that the most common means of suicide were hanging, suffocation (47.4%, n=110); followed by firearm (21.6%, n=50), poisoning (10.3%, n=24), train (9.9%, n=23), and fall (6.0%, n=14) (Table 1). The most common location of suicide was in a house, apartment, or garage (62.9%, n=146); followed by other location (e.g., school/college, roadway/street, parking lot, motor vehicle, or hotel) (20.3%, n=50); railroad tracks (9.9%, n=23); and a natural area (e.g., creek, open field) (5.6%, n=13) (Table 1). The majority of suicides occurred in the decedent’s own home (60.8%, n=141). Decedents aged 10 to 19 were more likely to have the suicide occur at a house, apartment or garage than those aged 20 to 24 (69.3% vs. 59.0%, respectively) (Table 2). Suicides among females were more likely to occur in the decedent’s own home than suicides among males (64.3% vs. 59.7%, respectively) (Table 3).

Table 1. Preliminary characteristics of suicides among youth age 10–24, Santa Clara County, 2005–2015 (n=232).

	Total	
	%	(n)
Weapon Type		
Hanging, suffocation	47.4	(110)
Firearm	21.6	(50)
Poisoning	10.3	(24)
Train	9.9	(23)
Fall	6.0	(14)
Other	4.7	(11)
Suicide at Decedent’s Own Home	60.8	(141)
Type of Location*		
House, apartment, garage	62.9	(146)
Other (e.g., school/college, roadway/street, parking lot, playground, motor vehicle, or hotel)	20.3	(50)
Railroad Tracks	9.9	(23)
Natural Area (e.g., creek, beach, open field)	5.6	(13)

*The type of location is where the suicide occurred.

Table 2. Preliminary characteristics of location of suicides by biological sex and by age category among youth ages 10 – 24, Santa Clara County, 2005–2015 (n=232).

	Age 10 to 19		Age 20 to 24	
	%	(n)	%	(n)
Type of Location				
House, apartment, garage	69.3*	(61)	59.0	(85)
Other (e.g., school/college, railroad tracks, roadway/street, parking lot, playground, motor vehicle, or hotel)	30.7	(27)	41.0	(59)
Injured at Decedent’s Home	67.1	(59)	56.9	(82)

* $p \leq .05$

Table 3. Preliminary characteristics of location of suicides by biological sex and by age category among youth ages 10 – 24, Santa Clara County, 2005–2015 (n=232).

	Male		Female	
	%	(n)	%	(n)
Type of Location				
House, apartment, garage	61.4	(108)	67.9	(38)
Other (e.g., school/college, railroad tracks, roadway/street, parking lot, playground, motor vehicle, or hotel)	38.6	(62)	32.1	(18)
Injured at Victim’s Home	59.7	(105)	64.3*	(36)

* $p \leq .05$

Almost all reports (92.2%, n=214) contained information about some circumstances that precipitated the suicide. Circumstances included in the investigative reports represent known information that were told or identified by investigators and noted in the Medical Examiner records. These circumstances are outlined in Tables 4 to 6. Decedents had an average of 4.8 precipitating circumstances identified (SD 3.10, Range 0–15); 81% of decedents had 2 or more precipitating circumstances indicated.

Among decedents with recorded precipitating circumstance data, current mental health problems were reported in 45.8% of the medical examiner reports (n=98) (Table 4). Among decedents with mental health problems, the most common diagnosis described was depression (74.5%, n=73); with other diagnoses including anxiety (13.3%, n=13), bipolar disorder (11.2%, n=11), or another type of mental health problem (13.3%, n=13). For some individuals, multiple mental health diagnoses were reported. Among decedents with recorded precipitating circumstance data, close to a third (32.2%, n=69) had a depressed mood at the time of their death, over a quarter (29.9%, n=64) were receiving treatment for mental health problems at the time of their death, and 41.1% (n=88) of decedents had ever received treatment for mental health problems (Table 4). Youth age 10 to 19 were more likely to have been reported to have ever been treated for mental health problems than youth age 20 to 24 (51.2% vs. 34.9%) (Table 5). Male youth were less likely to have reported a current mental health problem (37.1% vs. 70.9%), or to have been receiving treatment for mental health at the time of death (25.8% vs. 41.8%) than females (Table 6).

Among decedents with recorded precipitating circumstance data, 40.2% (n=86) of decedents left a suicide note, 34.6% (n=74) had a history of suicidal thoughts, 29.9% (n=64) disclosed their intent for suicide to someone, and 28.5% (n=61) had a history of suicide attempts (Table 4). Suicide intention was most commonly disclosed to family (37.5%, n=24), followed by former/current intimate partner (31.3%, n=20), friend (18.8%, n=12), or another individual (17.2%, n=11). None of the decedents were known to disclose to a teacher, and some decedents disclosed to multiple individuals. Youth age 10 to 19 were more likely to have a history of suicidal thoughts (45.1% vs. 28.0%), and to have previously attempted suicide (37.8% vs. 22.7%) than youth age 20 to 24 (Table 5). Male youth were less likely to have a history of suicide attempt than female youth (22.6% vs. 45.5%) (Table 6).

Among decedents with recorded precipitating circumstance data, over half (53.7%, n=115) of decedents had a recent crisis (either in the past or a foreseen crisis in the future) within 2 weeks of the

individual's death (Table 4). Recent crises included intimate partner problems, such as a breakup, an argument (e.g., with family or intimate partner), recent release from a medical facility (e.g., from a 5150 hold or other treatment), recent legal problems (e.g., DUI or court date), recent suicide attempt, recent drug/alcohol use, and school problems (e.g., failing classes, suspension).

Among decedents with recorded precipitating circumstance data, other precipitating circumstances included intimate partner problems, arguments, school problems, family relationship problems, and other relationship problems (Table 4). Youth aged 10 to 19 were more likely to have school problems (31.7% vs. 13.6%) and family relationship problems (37.8% vs. 15.2%) as a recorded precipitating factor than youth age 20 to 24 (Table 5). There were no significant differences in other recorded precipitating circumstances by biological sex (Table 6).

Table 4. Preliminary reported circumstances precipitating suicide among youth ages 10–24, Santa Clara County, 2003–2015 (n=214).

	Total	
	%	(n)
Mental Health and Alcohol/Substance Use		
Current mental health problem	45.8	(98)
Current depressed mood	32.2	(69)
Current treatment for mental illness	29.9	(64)
Ever treated for mental problem	41.1	(88)
Other substance problem	17.8	(38)
Alcohol dependence	10.8	(23)
Suicide Behavior		
Suicide note	40.2	(86)
Suicide thought history	34.6	(74)
Suicide intent disclosed	29.9	(64)
Suicide attempt history	28.5	(61)
Other Precipitating Circumstances		
Recent crisis	53.7	(115)
Intimate partner problems	27.6	(59)
Argument	22.0	(47)
School problem	20.6	(44)
Family relationship problem	20.1	(43)
Other relationship Problem	8.9	(19)

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

Table 5. Preliminary reported circumstances precipitating suicide by age category among youth ages 10–24, Santa Clara County, 2003–2015 (n=214).

	Age 10 to 19		Age 20 to 24	
	%	(n)	%	(n)
Mental Health and Alcohol/Substance Use				
Current mental health problem	47.6	(39)	44.7	(55)
Current depressed mood	37.8	(31)	28.8	(38)
Current treatment for mental illness	36.6	(30)	25.8	(34)
Ever treated for mental problem*	51.2	(42)	34.9	(46)
Other substance problem	15.9	(13)	18.9	(25)
Alcohol dependence	-	-	13.6	(18)
Suicide Behavior				
Suicide note	46.3	(38)	36.4	(48)
Suicide thought history*	45.1	(37)	28	(37)
Suicide intent disclosed	37.8	(31)	25	(33)
Suicide attempt history*	37.8	(31)	22.7	(30)
Other Precipitating Circumstances				
Recent crisis	62.2	(51)	48.5	(64)
Intimate partner problems	32.9	(27)	24.2	(32)
Argument	24.4	(20)	20.5	(27)
School problem*	31.7	(26)	13.6	(18)
Family relationship problem*	37.8	(23)	15.2	(20)
Other relationship Problem	-	(8)	8.3	(11)

* $p \leq .05$

- Suppressed because cell size < 10

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

Table 6. Preliminary reported circumstances precipitating suicide by biological sex among youth ages 10–24, Santa Clara County, 2003–2015 (n=214).

	Male		Female	
	%	(n)	%	(n)
Mental Health and Alcohol/Substance Use				
Current mental health problem*	37.1	(59)	70.9	(39)
Current depressed mood	31.5	(50)	34.6	(19)
Current treatment for mental illness*	25.8	(41)	41.8	(23)
Ever treated for mental problem*	35.9	(57)	56.4	(31)
Other substance problem	18.2	(29)	-	-
Alcohol dependence	10.7	(17)	-	-
Suicide Behavior				
Suicide note	39.0	(62)	43.6	(24)
Suicide thought history	33.3	(53)	38.2	(21)
Suicide intent disclosed	31.5	(50)	25.5	(14)
Suicide attempt history*	22.6	(36)	45.5	(25)
Other Precipitating Circumstances				
Recent crisis	54.1	(86)	52.7	(29)
Intimate partner problems	28.3	(45)	25.5	(14)
Argument	23.9	(38)	-	-
School problem	21.4	(34)	-	-
Family relationship problem	17.6	(28)	27.3	(15)
Other relationship Problem	6.9	(11)	-	-

* $p \leq .05$

- Suppressed because cell size < 10

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

To limit to possibility of identification of an individual, stratification of precipitating circumstances by city of residence was not conducted. However, precipitating circumstances by city of residence were presented in aggregate and without frequencies (Table 7). To be included in the table, 25% or more of decedents with reported precipitating circumstances in each city/city group had to have the reported precipitating circumstance listed in the first column of Table 7. Overall there was a high level of consistency across city groups. Common reported circumstances were recent crisis, current depressed mood, current mental health problems, intimate partner problems, past treatment for a mental health problem, and leaving a suicide note.

Table 7. Preliminary reported precipitating circumstances to suicide, by city of residence, among youth ages 10–24, Santa Clara County, 2003–2015.

	Morgan Hill, Gilroy	Other, Non-Santa Clara County City	Palo Alto, Stanford	San Jose Milpitas	Santa Clara	Saratoga, Los Gatos, Monte Sereno, Campbell	Sunnyvale, Cupertino
Mental Health and Alcohol/Substance Use							
Current mental health problem	X	X	X	X		X	X
Current depressed mood	X	X	X	X	X	X	X
Current treatment for mental illness	X	X	X			X	X
Ever treated for mental problem	X	X	X	X		X	X
Other substance problem							X
Suicide Behavior							
Suicide note	X		X	X	X	X	X
Suicide intent disclosed	X	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	X
Intimate partner problems	X	X		X	X	X	X
Argument	X	X				X	
School problem	X		X				X
Family relationship problem	X						

Note: To be included in the table, 25% or more of decedents with reported precipitating circumstances in each city/city group had to have the reported precipitating circumstance listed in the first column in the Medical Examiner report

California Healthy Kids Survey (CHKS)

The CHKS is a statewide survey conducted to help understand the health and well-being of students in the state of California.⁴ The same survey is used in participating school districts statewide and is administered to elementary, middle and high school students to help guide school improvement efforts. Each school year, school districts participate in CHKS, with some school districts incorporating additional modules to assess health behaviors beyond those in the standard survey. Not all school districts participate in CHKS each year.

⁴ California Healthy Kids. Accessed at: <http://chks.wested.org/>

To identify factors associated with non-fatal suicidal behavior and mental distress, CHKS data were used. This is a preliminary examination of unweighted data from the 2013–2014 school year, and additional analyses may be conducted. Included data are from public high schools in four school districts from diverse parts of Santa Clara County. School districts were examined, rather than individual schools, so that the sample size was large enough to examine the association between seriously considering suicide, mental distress, and factors at the individual, interpersonal, and community level. Analyses were also restricted to public high school students because high school students were asked about past year suicidal ideation and mental distress, and high school students had a large enough sample size for analyses. The four school districts examined were Palo Alto Unified School District (PAUSD), Santa Clara Unified School District (SCUSD), Gilroy Unified School District (GUSD), and East Side Union High School District (ESUHD). PAUSD includes the city of Palo Alto, SCUSD includes the city of Santa Clara, GUSD includes the city of Gilroy, and ESUHD includes the city of San Jose. Non-fatal suicidal behavior was assessed by a question that asked if the student had “seriously considered attempting suicide” in the 12 months prior to the completion of the survey. Mental distress was assessed by a question that asked if students had ever felt “so sad or hopeless almost every day for two weeks or more that you stopped doing some usual activities” in the 12 months prior to the completion of the survey. Bivariate analyses using Fisher’s Exact Tests were conducted to identify factors associated with seriously considering suicide, and with experiencing mental distress, in the past 12-months. These preliminary findings showing within school district comparisons are provided in Tables 8 to 10.

Across the four school districts examined, the unweighted prevalence of youth seriously considering suicide in the 12 months prior to survey completion ranged from 12.2% (at PAUSD) to 20.1% (at ESUHD) of participating youth (Table 8). The unweighted prevalence of self-reported mental distress in the 12 months prior to survey completion ranged from 20.4% (at PAUSD) to 34.3% (at

ESUHD) of participating youth. The prevalence of past year suicidal ideation and mental distress of participating youth at PAUSD was significantly lower than other three school districts.

Table 8. Preliminary prevalence of seriously considering suicide and mental distress in the 12 months prior to survey completion among public high school students at four school districts, California Healthy Kids Survey, 2013–2014.

	School District			
	PAUSD	SCUSD	GUSD	ESUHD
	% (n)	% (n)	% (n)	% (n)
Seriously considering suicide in past 12 months	12.2* (173)	17.9 (275)	19.6 (215)	20.1 (1715)
Mental distress in past 12 months	20.4* (287)	31.7 (489)	29.6 (324)	34.3 (2926)

*p<0.05

PAUSD = Palo Alto Unified School District (n=1457)

SCUSD = Santa Clara Unified School District (n=1576)

GUSD = Gilroy Unified School District (n=1195)

ESUHD = East Side Union High School District (n=9154)

Students that endorsed seriously considering suicide in the 12 months prior to survey completion were compared to students that had not considered suicide (Table 9). In all four school districts examined, students that had seriously considered suicide in the 12 months prior to survey completion were significantly more likely than students that had not considered suicide to have:

- Used alcohol at some point in their lifetime
- Used illicit drugs (e.g., cocaine, marijuana, ecstasy, or pain medication) in their lifetime
- Engaged in binge drinking in the past 30 days
- Self-identified as gay, lesbian, or bisexual (LGB)
- Reported mental distress in the 12 months prior to survey completion
- Missed school in past 30 days because they were behind in schoolwork, were bored/uninterested in school, felt sad/hopeless/angry
- Experienced bullying and victimization (physical, psychological, or cyber)

In all four school districts examined, students that had seriously considered suicide in the 12 months prior to survey completion were significantly less likely than students that had not considered suicide to:

- Perceive that an adult or teacher cared about them
- Have a high level of school connectedness

To identify factors associated with mental distress, students that endorsed mental distress in the 12 months prior to survey completion were compared to students that did not have mental distress (Table 10). In all four school districts examined, students that had mental distress in the 12 months prior to survey completion were significantly more likely than students that did not have mental distress to have:

- Used alcohol at some point in their lifetime
- Used illicit drugs (e.g., cocaine, marijuana, ecstasy, or pain medication) in their lifetime
- Engaged in binge drinking in the past 30 days
- Self-identified as gay, lesbian, or bisexual (LGB)
- Missed school in past 30 days because they did not get enough sleep, felt sad/hopeless/angry, had a physical illness, were behind in their schoolwork, or were bored/uninterested in school
- Experienced bullying and victimization (physical, psychological, or cyber)

In all four school districts examined, students that had mental distress in in the 12 months prior to survey completion were significantly less likely than students that did not had mental distress to:

- Perceive that an adult or teacher cared about them
- Have a high level of school connectedness

Table 9. Preliminary factors associated with seriously considering suicide in the 12 months prior to survey completion, among public high school students at four school districts, California Healthy Kids Survey, 2013–2014.

	PAUSD (n=1457)		SCUSD (n=1576)		GUSD (n=1195)		ESUHD (n=9154)	
	Considered Suicide		Considered Suicide		Considered Suicide		Considered Suicide	
	Yes	No	Yes	No	Yes	No	Yes	No
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
a. Lifetime alcohol/substance use								
Ever drank alcohol	43.4* (75)	26.8 (332)	52.2* (143)	30.1 (377)	51.9* (111)	37.5 (327)	46.6* (793)	31.8 (2153)
Ever use illicit drugs	37.6* (65)	20.5 (250)	47.4* (126)	26.4 (324)	53.1* (111)	32.6 (283)	40.4* (681)	26.6 (1784)
b. Binge drink in past 30 days								
	17.4* (30)	9.1 (112)	16.4* (45)	7.1 (89)	17.8* (38)	11.5 (100)	15.8* (269)	8.4 (570)
c. Sexual minority questions								
LGB orientation	12.7* (22)	4.0 (49)	18.2* (50)	4.7 (59)	17.7* (38)	3.3 (29)	17.0* (292)	4.8 (326)
d. Mental distress past 12 months								
Felt sad or hopeless almost every day for two weeks or more	76.3* (132)	12.4 (153)	77.5* (213)	21.9 (275)	70.9* (146)	19.5 (170)	75.6* (1275)	23.9 (1618)
e. Missed school in the past 30 days because								
Didn't get enough sleep	33.0* (57)	15.9 (197)	28.7* (79)	14.4 (182)	14.9 (32)	10.6 (93)	16.9* (290)	9.6 (652)
Felt very sad, hopeless, anxious, stressed, or angry	28.3* (49)	6.2 (77)	36.4* (100)	7.1 (89)	22.3* (48)	6.3 (55)	23.6* (404)	6.2 (420)
Illness, including problems with breathing and teeth	49.7* (86)	41.7 (518)	47.6 (131)	42.2 (532)	39.5 (85)	39.1 (344)	40.1* (688)	35.9 (2443)
Were behind in schoolwork/unprepared for an assignment	18.5* (32)	11.9 (148)	15.6* (43)	8.1 (102)	14.4* (31)	7.7 (68)	13.2* (227)	6.5 (445)
Were bored with or uninterested in school	9.3* (16)	3.6 (44)	12.4* (34)	6.3 (79)	10.2* (22)	5.1 (45)	8.6* (148)	5.0 (340)
f. Relationship with school								
Teacher-adult in school cares about me	41.0* (71)	66.6 (824)	44.0* (121)	59.3 (746)	45.6* (94)	59.1 (501)	46.0* (773)	55.4 (3705)
High school connectedness	41.6* (16)	70.6 (44)	31.6* (34)	54.7 (79)	30.4* (22)	50.5 (45)	20.7* (148)	38.8 (340)

	(72)	(875)	(87)	(690)	(65)	(440)	(352)	(2630)
School provides meaningful opportunities (high)	12.1*	19.1	7.7	11.2	10.5	15.6	10.4*	13.1
	(21)	(236)	(21)	(140)	(22)	(135)	(177)	(880)
g. Bullying and Victimization past 12 months								
Violent victimization at school	19.2*	8.7	27.4*	14.7	34.4*	13.0	30.4*	14.8
	(33)	(107)	(75)	(185)	(74)	(113)	(516)	(1001)
Psychologically bullied at school	53.2*	26.7	58.2*	29.4	63.3*	27.4	56.7*	28.2
	(92)	(331)	(160)	(371)	(136)	(240)	(969)	(1916)
Cyber bullying on internet	30.2*	12.3	34.9*	13.3	36.5*	12.1	35.8*	14.9
	(52)	(152)	(96)	(167)	(78)	(106)	(611)	(1012)

* $p < .05$

PAUSD = Palo Alto Unified School District; SCUSD = Santa Clara Unified School District; GUSD = Gilroy Unified School District; ESUHD = East Side Union High School District

Table 10. Preliminary factors associated with mental distress in the 12 months prior to survey completion, among public high school students at four school districts, California Healthy Kids Survey, 2013–2014.

	PAUSD		SCUSD		GUSD		ESUHD	
	Mental Distress		Mental Distress		Mental Distress		Mental Distress	
	Yes	No	Yes	No	Yes	No	Yes	No
	%	%	%	%	%	%	%	%
	(n)	(n)	(n)	(n)	(n)	(n)	(n)	(n)
a. Lifetime alcohol/substance use								
Ever drank alcohol	43.7*	25.3	47.5*	27.8	51.9*	35.0	45.2*	29.3
	(125)	(284)	(231)	(289)	(167)	(266)	(1314)	(1635)
Ever use illicit drugs	39.4*	18.6	40.2*	25.4	52.2*	29.7	38.5*	24.6
	(112)	(205)	(192)	(258)	(167)	(226)	(1113)	(1356)
b. Binge drink in past 30 days								
	18.5*	8.1	12.7*	6.9	16.8*	10.6	13.6*	7.9
	(53)	(90)	(62)	(72)	(54)	(81)	(396)	(441)
c. Sexual minority questions								
LGB orientation	11.9*	3.3	14.7*	3.5	11.7*	3.4	12.5*	4.3
	(34)	(37)	(72)	(37)	(38)	(26)	(367)	(243)
d. Missed school in the past 30 days because								
Didn't get enough sleep	31.0*	14.5	28.8*	11.4	16.7*	9.1	15.8*	8.6
	(89)	(163)	(141)	(119)	(54)	(70)	(462)	(481)
Felt very sad, hopeless, anxious, stressed, or angry	29.3*	3.9	32.1*	3.1	20.1*	4.8	21.1*	3.7
	(84)	(44)	(157)	(32)	(65)	(37)	(616)	(207)
Illness, including problems with breathing and teeth	53.3*	39.9	50.5*	39.5	44.4*	36.5	41.2*	34.5
	(153)	(448)	(247)	(413)	(144)	(281)	(1205)	(1935)
Were behind in schoolwork/unprepared for an assignment	22.3*	10.5	17.0*	5.8	14.8*	6.4	12.1*	5.7
	(64)	(118)	(83)	(61)	(48)	(49)	(355)	(318)
Were bored with or uninterested in school	9.4*	2.9	12.7*	4.8	10.2*	3.9	8.7*	4.3
	(27)	(33)	(62)	(50)	(33)	(30)	(254)	(238)
e. Relationship with school								
Teacher-adult in school cares about me	45.6*	67.8	43.4*	62.6	45.4*	60.9	47.3*	56.8
	(131)	(759)	(212)	(654)	(144)	(447)	(1361)	(3123)
High school connectedness	45.0*	72.5	31.1*	59.9	29.0*	53.9	22.4*	41.8
	(129)	(813)	(152)	(626)	(94)	(409)	(651)	(2334)
School provides meaningful opportunities (high)	10.5*	20.1	8.25*	11.7	11.9	15.7	10.6*	13.6
	(30)	(225)	(40)	(122)	(38)	(118)	(308)	(752)
f. Bullying and Victimization past 12 months								
Violent victimization at school	16.9*	8.2	26.5*	12.5	30.5*	11.4	27.1*	13.0
	(48)	(92)	(129)	(130)	(98)	(87)	(788)	(723)

Psychologically bullied at school	51.8*	24.4	56.4*	24.2	62.9*	22.5	53.8*	23.4
	(148)	(274)	(276)	(253)	(203)	(173)	(1571)	(1310)
Cyber bullying on internet	29.8*	10.6	32.2*	10.3	34.5*	8.8	34.1*	11.2
	(85)	(118)	(157)	(107)	(111)	(67)	(993)	(623)

* $p < .05$

PAUSD = Palo Alto Unified School District; SCUSD = Santa Clara Unified School District; GUSD = Gilroy Unified School District;
 ESUHD = East Side Union High School District

Preliminary Recommendations

Preliminary findings based on data from CDC WONDER, VRBIS, Medical Examiner reports, and CHKS suggest the following initial, broad recommendations. These initial, broad recommendations will be further refined with continued examination of data from multiple data sources.

1. Preliminary analyses of data from Medical Examiner reports and from the 2013–2014 CHKS indicate that multiple circumstances and factors are associated with both fatal and non-fatal suicidal behavior/ideation. This underscores the complex nature of fatal and non-fatal suicide behavior among youth in Santa Clara County. Factors associated with fatal and non-fatal suicidal behavior were found at the individual (e.g., mental health problems, sexual orientation, drug and alcohol use, past suicidal behavior), interpersonal (e.g., arguments, bullying, intimate partner, and family problems), and community level (e.g., connectedness to school, meaningful engagement at school). This suggests that suicide prevention efforts should take a multi-faceted approach to suicide prevention and should include programs, activities, and outreach that target factors at multiple levels beyond those that focus on risk factors at the individual level.
2. Based on these preliminary findings, the majority of youth suicides in Santa Clara County have been among males and among youth aged 20 to 24 years of age. Based on these findings, focused outreach to male youth, and those between 20 to 24 years old, may be needed. Strategies for mental health promotion and suicide prevention that are appropriate for male youth, and youth aged 20 to 24, should be identified.
3. A recent or anticipated crisis may be a particularly salient precipitating circumstance for youth aged 10 to 24 (Table 5), and a recent crisis was a common precipitating circumstance across all city/city groups examined (Table 7). Therefore those in close contact with youth aged 10 to 24 should be particularly cognizant of any such crises, and offer resources to those experiencing them. This would include a particular focus on youth recently released from the hospital or those with recent contact

with the criminal justice system. Furthermore, those in close contact with youth aged 10 to 24 should be familiar with signs of distress so they are able to recognize and intervene with a youth in crisis. For more information about warning signs of suicide and what to do if they are identified, refer to the American Association of Suicidology resource page:

<http://www.suicidology.org/resources/warning-signs>. Additionally, the National Suicide Prevention Lifeline phone number is 1-800-273-8255.

4. Current mental health problems were seen in close to half of decedents age 10 to 24 (Table 5). Furthermore, mental distress was associated with seriously considering suicide in the past 12 months among high school students (Table 9). Therefore suicide prevention efforts should focus on improving mental health by encouraging help-seeking behavior, and ensuring access to quality care. Particular focus may need to be made on males as they were less likely than female decedents to have a history of treatment, been receiving treatment at the time of death, or to have had a mental health diagnosis at the time of death (Table 6). Furthermore, less than 25% of decedents in San Jose, Milpitas, and Santa Clara were receiving mental health treatment at the time of their death (Table 8). Focus should be made to understand and identify barriers to help-seeking in these communities with lower reported service utilization prior to death.
5. When suicide intention is disclosed, the potential to prevent suicide may increase because there is an opportunity to intervene. Only a third of decedents disclosed their suicide intent prior to their death. Therefore, strategies should be identified to encourage youth to disclose and seek help during a suicidal crisis. Connections between youth and a teacher or another adult, feeling connected to school, and meaningful opportunities at school were found to be protective factors for suicidal ideation. Enhancing relationships between youth and a teacher or another adult could provide opportunities to identify at-risk youth and provide ways for youth to seek help prior to and during a crisis. Activities to enhance the relationship between youth and a teacher or other adult should be

implemented in tandem with educational programs focused on recognizing warning signs for suicide and how to respond to a suicidal individual.

6. Suicide decedents in Santa Clara County were diverse by race/ethnicity with the majority being White (of any ethnicity), Asian (of any ethnicity), and Hispanic (of any race). This underscores that death by suicide, in Santa Clara County, occurs among youth from various racial/ethnic backgrounds. Therefore suicide prevention efforts should continue to focus on providing education, programming, and services to youth from diverse backgrounds. Both the messaging and mode of delivery of prevention materials should consider linguistic and cultural differences.
7. Preliminary analyses of CHKS data from the 2013–2014 school year suggest that school districts should focus efforts on bullying prevention, with programming targeting multiple forms of bullying behavior, including physical and psychological victimization. Populations that may need targeted mental health and suicide prevention outreach are students that self-identify as lesbian, gay or bisexual; students with a lifetime history of drug and alcohol use; and students that do not feel connected to school and do not feel cared about by teachers and staff. Finally, students that miss school, even for non-mental health related reasons, may need to be targeted with mental health promotion and suicide prevention efforts. This includes students that miss school due to physical illness, lack of sleep, problems keeping up with schoolwork, and boredom.

Next Steps

The results presented in this Epi-2 Report are preliminary and subject to change. The next steps for this investigation include: (1) Conduct additional analyses at school, city, and county-wide levels, when possible; (2) Abstract media articles covering suicides that had occurred in Santa Clara County and nearby areas; (3) Inventory suicide prevention programs and policies that are currently being implemented and used in Santa Clara County; (4) Synthesize information analyzed for this investigation

to make specific recommendations. A comprehensive final report that includes these additional analyses and recommendations is planned.

