UTAH DEPARTMENT OF HEALTH

# Utah Health Status Update:

## *CDC Investigation Shows Youth Suicides in Utah Increasing*

Special Edition 4 *(December 2017)*

### KEY FINDINGS

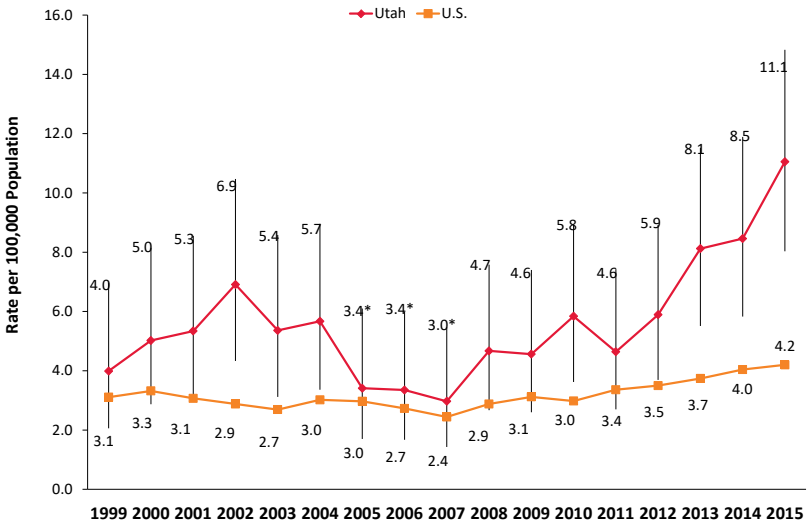
- The UDOH requested an Epi-Aid from the CDC to assist in investigating the 141.3% increase in the youth suicide rate from 2011 to 2015.
- From 2011–2015, 150 Utah youth aged 10–17 died by suicide.
  - 78.0% were male
  - 35.2% had a mental health diagnosis
  - 31.0% had a depressive mood at the time of suicide
  - 29.6% had a history of suicide ideation or suicide attempt
  - 55.3% experienced a recent crisis
  - 23.9% disclosed intent to die in the past month
  - 47.2% left a suicide note
  - Of the 40 cases that included information on the decedent's sexual orientation, six (15.0%) were identified as sexual minorities
  - 20.5% had a history of cutting or had evidence of recent cutting
  - 12.6% of decedents had experienced a technology-related restriction prior to their death
- For the 3,005 ED visits and 690 hospitalizations for self-inflicted injury among Utah youth aged 10–17 during 2011–2014, the predominant method of injury was poisoning (72.4%), followed by cutting/piercing (23.0%).
- Approximately 19% of youth aged 10–17 considered or planned suicide in the past year and 8.6% reported a suicide attempt.
- Risk factors for suicide ideation and attempt included being bullied at school or online, substance use in the previous month, being female, in 10th grade, non-White, and low parental education.
- Supportive family environments, community environments, school environments, and peer environments all reduced the odds of suicide ideation.

The Utah Department of Health (UDOH) Violence and Injury Prevention Program (VIPP) observed a 141.3% increase in the youth suicide rate from 4.6 per 100,000 population in 2011 to 11.1 per 100,000 population in 2015 for ages 10 to 17 years (Figure 1). As a result, the UDOH requested short-term epidemiologic assistance, known as an Epi-Aid, from the U.S. Centers for Disease Control and Prevention (CDC) to assist in investigating the observed increase. Epi-Aids are carried out by a team of Epidemic Intelligence Service (EIS) officers who provide an independent investigation of an urgent public health problem.[1] Along with UDOH staff, the Epi-Aid team identified the following objectives to guide the investigation:

1. Characterize the epidemiology of, and trends in fatal and non-fatal suicidal behaviors among Utah youth aged 10–17 years that occurred from 2011 to 2015.
2. Identify risk and protective factors for fatal and non-fatal suicidal behaviors among Utah youth aged 10–17 years.
3. Identify the three most utilized suicide prevention initiatives in Utah by school district (QPR, Hope Squads, and Hope for Tomorrow) and compare these programs to evidence-based initiatives and national recommendations for suicide prevention.

## Youth Suicide Trends

*Figure 1.* Rate of suicides by year, youth aged 10–17, Utah and U.S., 1999–2015




* Insufficient number of cases to meet the UDOH standard for data reliability; interpret with caution.
Source: Utah Office of Vital Records and Statistics

The Epi-Aid team analyzed data from multiple sources, including the UDOH Office of the Medical Examiner, the Utah Violent Death Reporting System, the Prevention Needs Assessment survey, emergency department and hospitalization data, as well as curricula from school-based suicide prevention initiatives.

From 2011–2015, 150 Utah youth aged 10–17 died by suicide; 78.0% of decedents were male. Firearms and suffocation were the most common methods of suicide. About one-third (35.2%) of decedents had a mental

health diagnosis and nearly a third (31.0%) had a depressive mood at the time of suicide. Approximately 30% had a history of ideation or suicide attempt. More than half of decedents (55.3%) had experienced a recent crisis. Nearly one-quarter (23.9%) disclosed their intent to die. Almost half left a suicide note (47.2%). Forty investigative narratives included information on the decedent's sexual orientation; of these, six (15.0%) were identified as sexual minorities. One in five decedents (20.5%) had a history of cutting or had evidence of recent cutting. A surprising finding was that 12.6% of decedents had experienced a technology-related restriction prior to their death. This included mobile phones, tablets, gaming systems, or computers being taken away by a parent or guardian (Table 1).

## Youth Suicide Decedent Characteristics

*Table 1.* Precipitating circumstances for suicide decedents aged 10–17 years, Utah, 2011–2015

| | n | % |
|---|---|---|
| **Mental health diagnosis** | 50 | 35.2 |
| Mental health treatment | 42 | 84.0 |
| **Current depressed mood** | 44 | 31.0 |
| **Sexual minority (N=40*)** | 6 | 15.0 |
| **History of ideation or attempt** | 42 | 29.6 |
| Suicidal thoughts (ideation) | 26 | 18.3 |
| Suicide attempts | 23 | 16.2 |
| **Recent crisis** | 82 | 55.3 |
| Family relationship problems | 31 | 21.4 |
| Intimate partner problems | 15 | 10.6 |
| School problem, legal problem, or suicide of friend | 19 | 13.4 |
| **Disclosed intent in past month** | 34 | 23.9 |
| To friend | 14 | 41.2 |
| Parents/guardian | 11 | 32.4 |
| **Left a suicide note** | 67 | 47.2 |
| **Technology-related restrictions** | 18 | 12.6 |
| **Cutting and history of cutting** | 30 | 20.5 |

* Information for this circumstance was only available for N=40 decedents.
Source: Utah Violent Death Reporting System

There were 3,005 emergency department (ED) visits and 690 inpatient hospitalizations for self-inflicted injury among Utah youth aged 10–17 during 2011–2014. The majority of suicide attempts were among non-Hispanic White females. The predominant method of injury was poisoning (72.4%), followed by cutting/piercing (23.0%). The majority of youth seen in the ED (60.3%) were discharged to home or self-care and 24.5% were transferred to psychiatric care. The likelihood of being transferred from a hospital to a psychiatric facility was lower if the patient was Hispanic in both the ED (OR=.45) and hospital (OR=.12).

The 2015 Prevention Needs Assessment survey (PNA) was analyzed to determine risk and protective factors for youth suicide. Among youth less than age 18 in grades 8, 10, and 12, approximately 19% considered or planned suicide in the past year and 8.6% reported a suicide attempt. Significant risk factors for suicide ideation were being bullied at school or online and substance use in the previous month. Multiple logistic regression identified being female, in 10th grade, non-White, and low parental education as risk factors for suicide ideation and attempt. Youth in the TriCounty Health District also were at higher risk. Students who reported participating more

## Suicide Ideation and Attempt Characteristics

*Table 2.* Odds ratios of characteristics of suicide ideation and attempt among youth less than age 18 in grades 8, 10, and 12, Utah, 2015

| Characteristic | Number | Percent | Suicide Ideation | Suicide Attempt |
|---|---|---|---|---|
| | | | Odds Ratio (95% Confidence Interval) | |
| **SEX** | | | | |
| Male | 12,706 | 46.7 | Reference Group | Reference Group |
| Female | 14,507 | 53.3 | **2.15 (1.96–2.37)** | **2.46 (2.16–2.79)** |
| **AGE GROUP (YEARS)** | | | | |
| 10–14 | 13,111 | 48.0 | Reference Group | Reference Group |
| 15–17 | 14,218 | 52.0 | **1.33 (1.18–1.50)** | 1.07 (0.91–1.26) |
| **GRADE LEVEL** | | | | |
| 8th | 13,206 | 48.3 | Reference Group | Reference Group |
| 10th | 10,616 | 38.9 | **1.42 (1.24–1.63)** | **1.21 (1.01–1.45)** |
| 12th | 350 | 12.8 | 1.11 (0.95–1.29) | **0.72 (0.57–0.91)** |
| **RACE** | | | | |
| White | 21,988 | 80.8 | Reference Group | Reference Group |
| Non-White | 5,208 | 19.2 | **1.33 (1.19–1.48)** | **1.79 (1.57–2.04)** |
| **RELIGIOUS ATTENDANCE*** | | | | |
| Religious | 17,479 | 66.5 | **0.51 (0.47–0.55)** | **0.42 (0.36–0.48)** |
| Less Religious | 8,792 | 33.5 | Reference Group | Reference Group |
| **PARENT EDUCATION LEVEL** | | | | |
| Less Than High School | 1,561 | 6.5 | **1.88 (1.55–2.28)** | **2.89 (2.30–3.63)** |
| High School Graduate or Some College | 7,707 | 32.2 | **1.50 (1.35–1.66)** | **1.78 (1.54–2.07)** |
| College Graduate | 14,649 | 61.3 | Reference Group | Reference Group |
| **LOCAL HEALTH DISTRICT** | | | | |
| Bear River | 3,610 | 13.2 | **0.73 (0.60–0.88)** | 0.80 (0.64–1.00) |
| Central | 1,496 | 5.5 | 0.79 (0.62–1.02) | 0.90 (0.60–1.36) |
| Davis | 2,545 | 9.3 | 0.84 (0.67–1.06) | 0.86 (0.62–1.17) |
| Salt Lake | 7,325 | 26.8 | Reference Group | Reference Group |
| San Juan | 192 | 0.7 | 0.81 (0.57–1.17) | 1.20 (0.62–2.30) |
| Southeast | 836 | 3.1 | 0.80 (0.55–1.17) | 1.05 (0.68–1.62) |
| Southwest | 2,450 | 9.0 | **0.83 (0.69–0.99)** | 0.93 (0.73–1.17) |
| Summit | 826 | 3.0 | **0.67 (0.54–0.84)** | **0.56 (0.40–0.79)** |
| Tooele | 1,877 | 6.9 | 1.03 (0.78–1.36) | 1.35 (0.96–1.88) |
| TriCounty | 439 | 1.6 | **1.34 (1.15–1.57)** | **1.57 (1.33–1.85)** |
| Utah County | 3,426 | 12.5 | 0.95 (0.78–1.16) | 1.11 (0.88–1.40) |
| Wasatch | 671 | 2.5 | **0.58 (0.39–0.86)** | **0.52 (0.41–0.65)** |
| Weber-Morgan | 1,636 | 6.0 | 1.04 (0.84–1.31) | 1.11 (0.87–1.43) |

* Based on a question asking "How often do you attend religious service or activities?" Responses of "never" and "rarely" were categorized as less religious and "attends 1–2 times per month" and "about once a week or more" were categorized as religious.
Highlighting indicates statistical significance at a p-value <0.05.
Source: Utah Prevention Needs Assessment

frequently in religious activities and those from Bear River, Southwest, Summit, and Wasatch Health Districts had lesser risk (Table 2).

Supportive social environments were found to be protective for suicide ideation and attempts. Supportive social environments are characterized by ones in which youth feel involved, valued, and able to ask for and receive help when they need it. Supportive family environments had the biggest impact on reducing suicide ideation (OR=.72), followed by community environments (OR=.82), school environments (OR=.85), and peer environments (OR=.93) all reduced the odds of suicide ideation (Table 3).

The Epi-Aid team also reviewed three youth suicide prevention programs in Utah: QPR, Hope Squad, and Hope for Tomorrow.

- The Question, Persuade, Refer (QPR) program is designated by the Suicide Prevention Resource Center (SPRC) as an evidence-based suicide prevention program. QPR improves knowledge about suicide, gatekeeper self-efficacy, gatekeeper skills, and knowledge of suicide prevention resources. To learn more about QPR, visit www.qprinstitute.com.
- Hope Squad is not currently designated by the SPRC as an evidence-based suicide prevention program. However, a pre- and post-test of trainees found members to be active in providing help, support, and assistance to fellow peers in their schools. To learn more about Hope Squads, visit http://hope4utah.com/hope-squad.
- Hope for Tomorrow is not currently designated by the SPRC as an evidence-based suicide prevention program. However, the program was found to help increase knowledge about mental illness and recognition of signs and symptoms of mental illness. To learn more about Hope for Tomorrow, visit www.namiut.org/families-caregivers/schools/item/104-hope-for-tomorrow.

For additional information about this topic, contact Michael Friedrichs, Utah Department of Health, (801) 538-6244, email: mfriedrichs@utah.gov; or the Office of Public Health Assessment, Utah Department of Health, (801) 538-9191, email: chdata@utah.gov.

## Positive Social Environments

*Table 3.* Odds ratios of positive social environments and suicide ideation and attempt among youth less than age 18 in grades 8, 10, and 12, Utah, 2015

| Characteristic | Total Sample Size | Overall Mean | Suicide Ideation | Suicide Attempt |
|---|---|---|---|---|
| | | | Odds Ratio (95% Confidence Interval) | |
| Supportive Family Environment | 13,442 | 9.37 | **0.72 (0.70–0.74)** | **0.71 (0.68–0.73)** |
| Supportive Community Environment | 13,482 | 7.46 | **0.82 (0.80-0.83)** | **0.79 (0.76-0.81)** |
| Supportive School Environment | 26,728 | 14.15 | **0.85 (0.83–0.87)** | **0.85 (0.83–0.87)** |
| Supportive Peer Environment | 13,365 | 17.80 | **0.93 (0.92–0.94)** | **0.91 (0.90–0.92)** |

Highlighting indicates statistical significance at a p-value <0.05.
Source: Utah Prevention Needs Assessment

The Epi-Aid team made several recommendations:

- Increase access to evidence-based mental health care for youth
- Strengthen family relationships
- Promote connectedness at various levels of the socio-ecologic framework
- Identify and provide support to youth at risk of suicidal behaviors
- Prevent other forms of violence in this population
- Reduce access to lethal means
- Teach coping and problem solving skills
- Consider comprehensive and coordinated suicide prevention programs that address multiple risk and protective factors simultaneously
- Conduct ongoing comprehensive evaluation of suicide prevention programs

Given the paucity of data on sexual orientation, yet its potential importance in understanding risk and protective factors for suicide and other health disparities, the UDOH is making efforts to include questions on this topic in the Student Health and Risk Prevention (SHARP) surveys. Recognizing the need to address suicide prevention efforts in Utah, the Utah State Legislature has passed a number of bills related to suicide prevention education, means restriction, training, access to treatment and the creation of several positions in state agencies to address this issue. For example, in 2015, SB 175 "School Safety & Crisis Line" sponsored by Senator Thatcher created a student safety and crisis tipline, in 2016, HB 440 "Suicide Prevention & Gun Data Study" sponsored by Representative King required a study to be conducted related to suicide prevention and firearms, and in 2017, HB 346 "Suicide Prevention Programs" sponsored by Representative Eliason, created a position at the Office of the Medical Examiner to study suicide deaths and provided for the award of grants that focus on suicide prevention efforts targeting youth. There is a strong partnership between state, community-level agencies, and private partners, including the Suicide Prevention Coalition, that are working on making the Epi-Aid team recommendations actionable. For more information about what is being done in the state, and how to get involved, visit utahsuicideprevention.org.

**References**

1. Epidemiologic Assistance (Epi-Aids). Epidemic Intelligence Service. CDC. Accessed at https://www.cdc.gov/eis/epiaids.html.