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GETTING TO TOMORROW

Addressing Suicide in Utah and the Mountain States

Getting to Tomorrow

Research Report 757

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INTRODUCTION

Since the turn of the millennium, suicide has been on the rise nationally. However, suicide rates differ significantly from state to state. And from a regional perspective, some of the highest rates are in the Mountain States, a grouping that includes Utah, Arizona, Colorado, Idaho, Montana, New Mexico, Nevada and Wyoming. Of these states, all except Arizona were among the top 10 states for suicide mortality in 2016.

Each suicide has significant ripple effects. A life and its potential are lost. Family and friends are traumatized, left wondering what they might have done differently. In some cases, a copycat phenomenon may emerge, in which peers or (in the case of celebrity suicide) members of the general public may see suicide as an appropriate action.

Yet the phenomenon of suicide remains poorly understood, and the contexts behind suicide vary significantly. As a result, the policy-level interventions vary widely, and their applicability may be highly tailored or experimental. In general, the data on their success are sorely lacking.

This report does not explore various psychological theories or approaches, nor does it purport to offer a specific agenda for policymakers to carry into action. Rather,

KEY FINDINGS OF THIS REPORT

- Since the early 2000s, suicide rates have been on the rise in Utah, in the Mountain States and nationally.

- Suicide rates are particularly high in Utah and the Mountain States.

- Various factors may relate to the higher suicide rates found in the Mountain States. Among them, high average elevation stands out as consistent among states with high suicide rates.

- Within the state, the highest suicide rates appear to cluster in five contiguous Utah counties.

- The Utah counties with the highest suicide rates also tend to have high opioid prescription rates.

- Suicide deaths are a predominantly male phenomenon.

- Suicide rates have increased significantly in every age group since the turn of the millennium, with more pronounced increases during the past decade.

- In Utah, the highest suicide rates by far are among working age adults.

- Both public schools and higher education institutions have heightened opportunities to promote mental health, offer suicide prevention training and provide intervention. However, efforts vary greatly among institutions.

- The State of Utah has been attempting to address suicide through numerous pieces of legislation over the past five years. At the federal level, Utah Congressmembers are working to improve the national suicide prevention hotline.

- Addressing suicide will require action on a broad range of fronts.

- To craft successful suicide prevention efforts over the long term, decision makers must invest in data collection and research to measure outcomes, where possible.

- Ultimately, intervention requires individualized care and thus the promotion of access to highly trained mental health professionals.

it addresses possible patterns that have been posited as correlating to higher rates, and it explores how those may pertain to the Mountain States. It also sets out overarching categories of risk. Primarily, it presents the general types of state-level interventions the public and policymakers should consider when formulating policies pertaining to suicide. This report focuses on Utah, but also includes information on the seven other Mountain States to supply context.

BACKGROUND

Nationally, the turn of the millennium was a low point for suicide rates. Looking back to 1960, the age-adjusted suicide rate in the U.S. peaked in 1977 and then generally declined until the year 2000. Thereafter, it began an ascent and by 2016 the suicide rate approximated the 1977 rate.[1]

In Utah, the years 1999 to 2016 (the most recent year for which complete data are available) saw a startling increase in its suicide rate, from 15.8 per 100,000 to 24.2. Significant numerical increases occurred in every age group, with a marked steady increase in both numbers and rates beginning in 2009.[2] Put another way, if the suicide rate in 2016 had been the same as in 1999, 212 fewer Utahns (roughly one-third of the total) would have taken their own lives. Preliminary numbers from 2017 show a continued increase in raw numbers.

Utah is part of a group of states with high suicide rates in the Mountain States region. Various attributes of these states, at first glance, would appear to correlate to higher suicide rates. These include elevation; rurality; gun ownership levels; the percentage of non-Hispanic whites and American Indians (groups with far higher suicide rates); and opioid abuse.

However, these correlations are far from absolute, and the extent of their relationship to suicide remains, at least in some instances, a matter for debate.

It should be noted that suicide is a heavily male phenomenon, with roughly triple the suicide rate among males compared to females, both in Utah and the U.S. at large. In general, this may be due to males' tendency to be more impulsive or aggressive, and a higher likelihood of using more lethal means. Depression, suicide ideation and suicide attempts are more broad-based phenomena among both males and females, but this report focuses primarily on data related to suicide deaths.

EXAMINING PARALLELS IN UTAH AND THE MOUNTAIN STATES

As previously noted, all but one of the Mountain States were in the top 10 for suicide rates in 2016. Utah ranked number five, with a rate of about 22 deaths by suicide per 100,000 people. (See Figure 1.)

Within Utah, suicide rates vary significantly. Among the coun-

Seven of the eight Mountain States ranked in the top 10 for suicide in 2016.

Figure 1: States with Highest Suicide Rates and Mountain States

Rank	State	Suicide Rate	Suicides
1.	Montana	25.9	267
2.	Alaska	25.8	193
3.	Wyoming	25.2	144
4.	New Mexico	22.5	471
5.	Utah	21.8	620
6.	Idaho	21.4	351
7.	Nevada	21.4	650
8.	Oklahoma	21.0	822
9.	Colorado	20.5	1,168
10.	South Dakota	20.2	163
17.	Arizona	17.7	1,271

Source: Centers for Disease Control, National Center for Health Statistics, "Suicide Mortality by State, 2016."

ties for which there are reliable data, those with the lowest suicide rates from 2012 to 2016 were at the northern end of the state: Morgan, Cache, Utah, Davis and Summit. A grouping of contiguous counties – Carbon, Emery, Sevier, Beaver and Duchesne – made up the top five. (See Figure 2.) The suicide rate in Carbon was roughly four times that of Morgan.

Suicide rates are highest in five contiguous Utah counties.
Figure 2: Suicide Rates in Utah by County 2012 to 2016 (per 100,000)
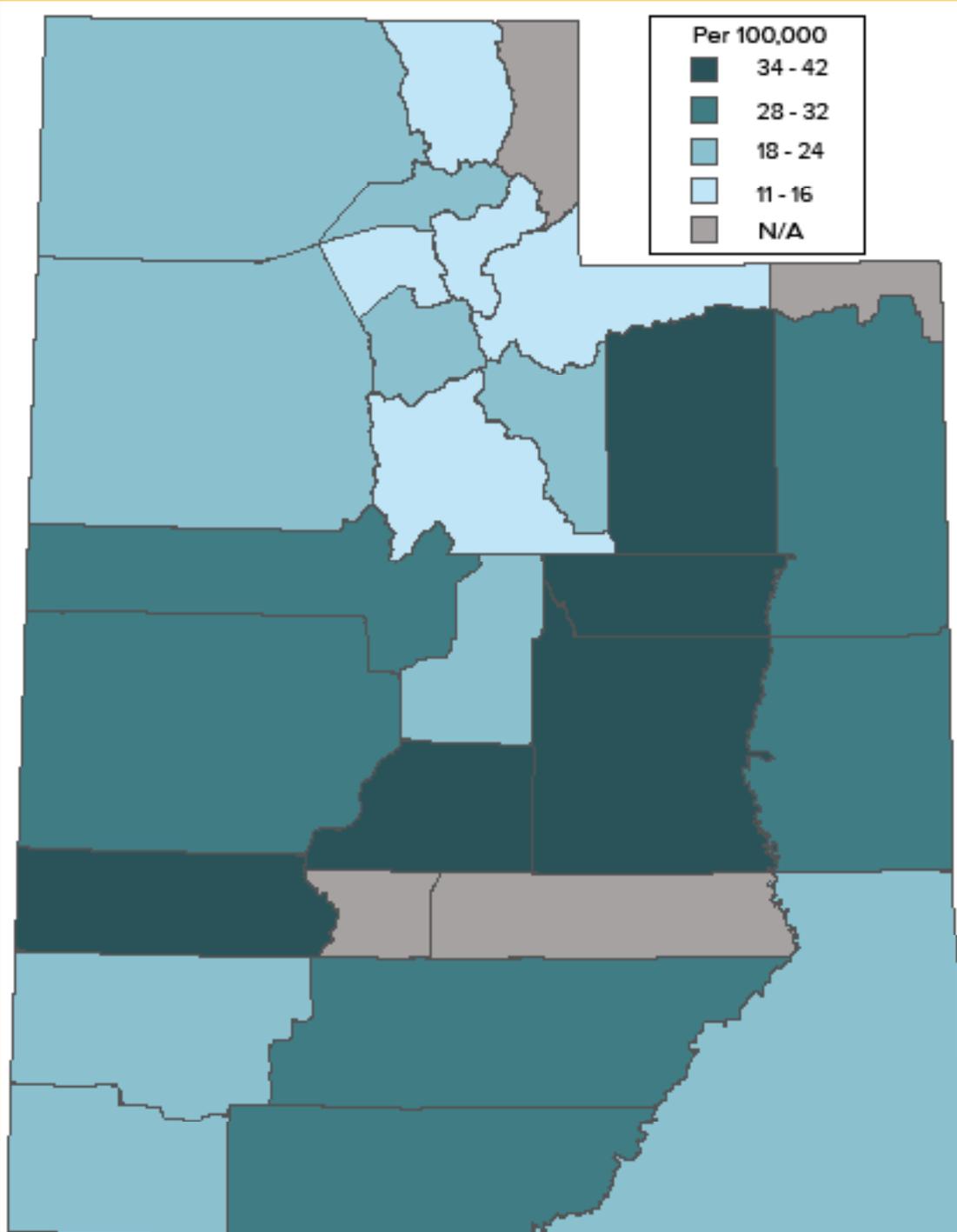
Per 100,000	
■	34 - 42
■	28 - 32
■	18 - 24
□	11 - 16
■	N/A

Source: Public Health Indicator Based Information System (IBIS), Utah's Public Health Data Resource, April 9, 2018. Utah Foundation map.

Figure 3: Suicide ranking (2016) in the states with the highest elevations (in feet)

State	Average Elevation	Suicide Rate Ranking
Colorado	6,800	9
Wyoming	6,700	3
Utah	6,100	5
New Mexico	5,700	4
Nevada	5,500	7
Idaho	5,000	6
Arizona	4,100	17
Montana	3,400	1
Oregon	3,300	16
Hawaii	3,030	40

Sources: WorldAtlas.com, "US States With The Highest Average Elevations," updated April 25, 2017; Centers for Disease Control, National Center for Health Statistics, "Suicide Mortality by State, 2016."

Elevation

Researchers in recent years have been exploring the possible effects of elevation on brain chemistry and depression. For instance, a new paper from University of Utah researchers suggests that living at a high elevation is linked to high depression and suicide rates; that treatment-resistant depression is highly linked to suicidal behavior; and that several anti-depressants become less effective at higher elevations.[3] Indeed, there is significant overlap between high-elevation states and higher suicide rates. (See Figure 3.) The main outlier on this list is Hawaii, where two thirds of the population resides on the lower-lying Oahu island and much of the remainder resides in low-lying coastal areas.

It is less clear that the pattern holds at the county level within Utah. To begin with,

Suicide rates suggest some correlation to elevation within Utah.

Figure 4: Utah Elevation by County (in feet) and suicide ranking

Elevation Ranking	County	Elevation	Suicide Ranking
1	Daggett	6,965	*
2	Piute	6,686	*
3	Carbon	6,631	1
4	Garfield	6,545	7
5	Summit	6,460	21
6	Wasatch	6,401	19
7	Rich	6,299	*
8	Wayne	6,296	*
9	Duchesne	6,207	5
10	Kane	6,020	11
11	Iron	6,004	20
12	Sanpete	5,850	14
13	Sevier	5,837	3
14	Emery	5,670	2
15	Beaver	5,561	4
16	Uintah	5,495	10
17	Juab	5,446	6
18	San Juan	5,361	15
19	Morgan	5,095	25
20	Utah	5,089	23
21	Millard	4,941	8
22	Tooele	4,833	18
23	Grand	4,803	9
24	Cache	4,669	24
25	Box Elder	4,593	16
26	Weber	4,557	12
27	Salt Lake	4,541	17
28	Davis	4,485	22
29	Washington	3,727	13

* Estimate suppressed/unavailable.

average elevations generally do not vary widely. Further-more, while a given county may have a high average elevation, its population may be concentrated in lower lying areas. That said, among the counties for which there is reliable suicide data, all the top five were more than 5,500 feet above sea level. Four of the counties with the lowest suicide rates (Davis, Cache, Utah and Morgan) were below that elevation. (See Figure 4.)

Rurality

Nationally, there is significant overlap between rurality and high suicide rates.[4] While national county-by-county maps show lower suicide rates around urban centers, a correlation between suicide and rurality is not apparent at the state-by-state level. Indeed, the fourth most rural state, Mississippi, has a relatively low suicide rate (ranked 38th). Meanwhile, the fifth and seventh ranked states in terms of suicide rates, Utah and Nevada, have small rural populations – 43rd and 48th, respectively. (See Appendix B.)

That said, within Utah rurality does appear to correlate somewhat with high suicide rates. Four of the top five counties in terms of suicide rate (Emery, Duchesne, Sevier and Beaver) see more than 50% of their populations living in rural areas. Three of the counties with the lowest suicide rates (Cache, Utah and Davis) are among the least rural. (See Figure 5.)

Access to Firearms

Because firearms are the primary means of suicide in the U.S., it may not be surprising to find some overlap between states' suicide rates and gun ownership rates. Some of the states with the lowest gun ownership rates – California, Massachusetts, New Jersey, New York and Rhode Island – also have low suicide rates. By contrast, four Mountain States are in the top 10 for both gun ownership and suicide rates. (See Appendix C.) All of the Mountain States are above the national gun ownership rate of 29.1%.

Interestingly, Hawaii and several Southern states are among the highest ranked for gun ownership, but do not have particularly high suicide rates. Here again, Utah is somewhat of an outlier, with a gun ownership rate in the lower half of U.S. states (though above the national rate).

A recent study examining the relationship between suicide rates and gun ownership unsurprisingly found a strong relationship between higher levels of firearm ownership in a state and higher firearm suicide rates for both males and females. But the study also found that, among

There appears to be some correlation between rurality and suicide among Utah Counties.

Figure 5: Utah Rural Population by County (2010, Census Bureau)

Rural Pop. Ranking	County	% Pop. in Rural Areas	Suicide Ranking
1	Daggett	100	*
1	Garfield	100	7
1	Piute	100	*
1	Rich	100	*
1	Wayne	100	*
2	San Juan	77.9	15
3	Millard	73.9	8
4	Emery	73.6	2
5	Duchesne	68.2	5
6	Sevier	64.7	3
7	Morgan	62.8	25
8	Beaver	56.5	4
9	Kane	54.9	11
10	Sanpete	40.9	14
10	Uintah	46.8	10
11	Juab	43.5	6
12	Summit	39.2	21
13	Carbon	33.7	1
14	Box Elder	31.1	16
15	Wasatch	26.9	19
16	Grand	25.4	9
17	Iron	22.6	20
18	Tooele	17.7	18
19	Cache	15.7	24
20	Washington	15.2	13
21	Weber	5.8	12
22	Utah	3.3	23
23	Davis	0.9	22
23	Salt Lake	0.9	17

* Estimate suppressed/unavailable.

Source: U.S. Census Bureau, Utah: 2010, Population and Housing Counts, "Population by Urban and Rural: 2010," www.census.gov/prod/cen2010/cph-2-46.pdf.

Figure 6: Utah Opioid Prescriptions by County: Opioids prescribed per capita, in morphine milligram equivalents (MME) (2006-2015)

Opioid Prescription Ranking	County	Opioids prescribed per capita, in MME	Suicide Ranking
1	Carbon	2,817	1
2	Kane	2,495	11
3	Emery	1,523	2
4	Sevier	1,348	3
5	Beaver	1,205	4
6	Juab	1,179	6
7	Washington	1,122	13
8	Sanpete	1,105	14
9	Iron	1,078	20
10	Garfield	1,066	7
11	Weber	1,014	12
12	Millard	909	8
13	Box Elder	873	16
14	Salt Lake	817	17
15	Morgan	736	25
16	Tooele	708	18
17	Davis	684	22
18	Wasatch	671	19
19	Grand	660	9
20	Summit	599	21
21	Utah	585	23
22	Uintah	565	10
23	Cache	522	24
24	Rich	502	**
25	Duchesne	429	5
26	San Juan	198	15
N/A	Daggett	*	**
N/A	Wayne	*	**
N/A	Piute	*	**

*Small values suppressed for confidentiality purposes.
**Estimate suppressed.

Source: amfAR; Opioid & Health Indicators Database; Opioids prescribed per capita, in morphine mg equivalents (MME); opioid.amfar.org/UT#data-explorer. Data received privately from Centers for Disease Control and Prevention.

males, there was a significant association between higher firearm ownership and higher *overall* suicide rates. This relationship did not hold for females.[5]

There is no reliable county-level data on gun ownership, though gun ownership tends to be much higher in rural areas generally.[6]

Race/Ethnicity

Suicide among non-Hispanic whites and American Indians far outpaces the rates among Asians, African Americans and Hispanics of any race. According to the Suicide Prevention Resource Center, the rate of suicide among American Indians/Alaska Natives in 2016 was 21.39 per 100,000 and among whites it was 18.15. For the other three groups, suicide rates were far lower, ranging from 6.35 to 7.0.[7] This is particularly relevant to the Mountain States, most of which have comparatively high proportions of non-Hispanic white residents, American Indians or both. (See Appendix D.)

Within Utah, some interesting divergences from expectations occur at the county level. To begin with, the county with the highest non-Hispanic white population (Morgan) had the lowest suicide rate. And the county with by far the highest American Indian population (nearly half, San Juan) did not have a particularly high suicide rate. In short, while those two groups have much higher suicide rates nationally, the available data yields no obvious striking patterns related to their suicide rates at the county level within Utah. That said, most counties have non-Hispanic white populations above 80%, making inter-county comparisons on this metric difficult.

Opioid Use

Research has shown a strong relationship between opioid use and suicide.[8] That said, on a state-by-state basis, there are no clear-cut overlaps between opioid prescribing rates and suicide. For example, Colorado has a low prescription rate and a high suicide rate; Alabama has a high prescription rate and a low suicide rate.[9]

At the Utah county level, a more interesting picture emerges. Over a 10-year period ending in 2015, four of the five counties with the highest suicide rates – Carbon, Emery, Sevier and Beaver – were among the top five for opioid prescription amounts per capita. (See Figure 6.) Carbon, first in suicide, also ranked first in terms of opioid prescriptions. (Utah Foundation used a 10-year period due to the cumulative effects of opioid use over time.)

CATEGORIES OF RISK

While there are general trends that may be observed in Utah and the other Mountain States, there are certain individual characteristics or profiles associated with a heightened risk of suicide, according to the Centers for Disease Control and Prevention. What follows is a brief overview of these categories. An exhaustive treatment is beyond the scope of this report.

Mental Health Conditions

Not surprisingly, people who have a history of mental disorders, particularly clinical depression, are at particular risk of suicide. This includes people who have previously attempted suicide. Those with a history of alcohol and substance abuse are also at heightened risk. In terms of personality profile, those with aggressive or impulsive tendencies are at heightened risk. The mental health risks are exacerbated when there is a lack of access to mental health treatment or an unwillingness to seek treatment.

Family History

The fact that non-Hispanic whites and American Indians take their own lives at far higher rates than the rest of the population suggests possible genetic and cultural links to clinical depression. Along these lines, people at a higher risk of suicide include those with a family history of suicide.

Life Circumstances

Life changes that inspire a feeling of hopelessness may put an individual at risk of suicide. For instance, those with a terminal illness or chronic pain may see suicide as a way to end their suffering or even spare their family emotional or financial hardship. Others may fall into a situation where they feel isolated. Still others may have been subject to an emotional shock, such as a relationship loss or betrayal, a social humiliation, a loss of employment or a financial loss. For instance, one study found that the risk of suicide among divorced men was more than twice that of married men.[10]

Trauma

People subjected to trauma tend to suffer from mental health issues at a higher rate and may also be at higher risk of suicide. The trauma may include a history of physical, sexual or mental abuse by family members, adult acquaintances or youth peers. One notable category of trauma is adverse childhood experiences which may include emotional, physical and sexual abuse; household substance abuse, mental illness and incarceration; and parental domestic violence, separation or divorce. One study found children subjected to any of those categories increased the risk of attempted suicide by two- to five-fold.[11] Other experiences, such as military combat exposure, can also bring significant trauma.

Suicide Contagion

Exposure to suicidal behavior has been shown to encourage suicide, especially in adolescents and young adults. This can occur as the result of fictional portrayals of suicide, media reporting on suicide and the suicide of a peer or family member. The U.S. Department of Health & Human Services recommends that media reporting on suicides be concise, devoid of detail as to method and not in any way glorified.[12]

PREVENTION AND INTERVENTION STRATEGIES

The remainder of this report addresses current state-level efforts to address suicide in Utah. It also sets forth various categories of intervention the state should explore in formulating a suicide prevention strategy.

Crisis Intervention

Crisis intervention services are a necessary component of suicide prevention. In Utah, there are 20 suicide crisis hotlines spread across the state. There is also a statewide line operated through the University of Utah Neuropsychiatric Institute, which serves as the local affiliate for the National Suicide Prevention Lifeline.

During summer 2018, a Utah senator and representative pushed through Congress the National Suicide Prevention Hotline Improvement Act. The new law stream-lines and provides easier access to a national suicide hotline through a three-digit phone number. Also in 2018, the Utah Legislature advanced a new law that requires the statewide mental health crisis line and local mental health crisis lines to meet certain staffing and operational standards to ensure calls are always answered and responded to in a timely manner.[13]

In addition, the University of Utah Neuropsychiatric Institute operates the SafeUT app, a smartphone text and tip line application. It provides real-time crisis intervention to Utah youth through texting. On the average, the app receives 1,206 chats and 616 anonymous tips per month.[14] One of the recommendations from the Utah Teen Suicide Prevention Task Force is to improve the capacity of the SafeUT mobile app based on the utilization trend data.[15]

Some states have similar programs in place. New Jersey, for example, has a state-wide crisis line that can be accessed through the phone, online web chat or text. The state also has a program for parents with children who have difficult behavioral health disorders or substance abuse problems.[16]

For some students, having to wait to see a counselor can lead to a crisis. In 2018, Utah passed HB 370, which provides for grants for higher education institutions to implement SafeUT. Currently, the University of Utah is the only higher education institution that is fully enrolled. The University of Utah Neuropsychiatric Institute plans to have some higher education campuses enrolled by the start of the 2018 academic school year.[17]

There is also a Mobile Crisis Intervention team, which is provided by the University of Utah Neuropsychiatric Institute and is a free service available to any resident of Salt Lake County who is experiencing a behavioral health crisis. In 2018, the Utah Legislature passed the Utah Mobile Crisis Outreach Team, which requires the Utah Mental Health Crisis Line Commission to serve as the mobile crisis outreach team advisory committee and requires the Division of Substance Abuse and Mental Health to set standards for a mobile crisis outreach team certification.[18]

The following discussion addresses current efforts and the categories of intervention targeted at three age groups: teenagers; college enrollees; and adults working age or older.

The number of suicides for Utah youth ages has quadrupled since 2007.

Figure 7: Utah Youth Suicides, 1999-2017, ages 10 to 17
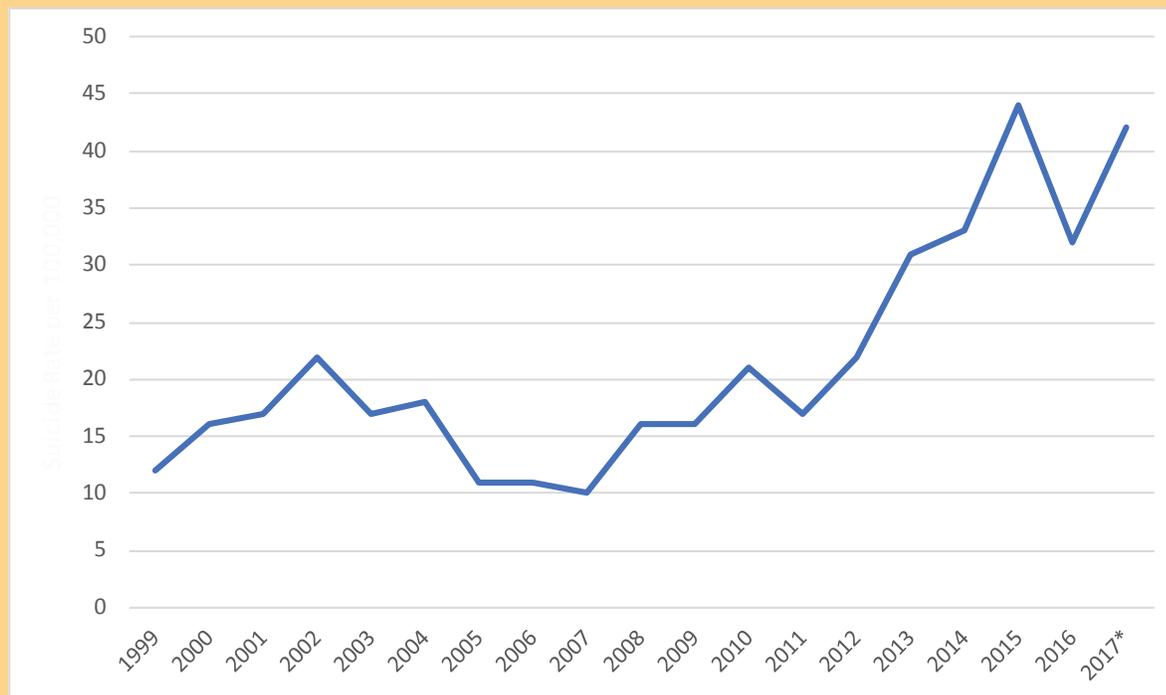
* Preliminary 2017 data.

Source: Utah Violence & Injury Prevention Program.

STRATEGIES TARGETED AT SCHOOL-AGED YOUTH

The suicide rate for youth and young adults in Utah has been steadily increasing for the past decade. The increase in Utah youth suicides between 2011 and 2015 sparked widespread concern across the state. (See Figure 7.)

A recent report addressed suicide and suicidal behaviors among youth aged 10 to 17 in Utah, focusing specifically on the years 2011 through 2015.[19] Among the report's most salient findings:

- The teen suicide rate in Utah was more than double the national rate.
- The teen suicide rate increased more than five times faster in Utah than the national average.
- Boys accounted for 77.4% of suicide deaths.
- Common circumstances among teens who took their own lives included: a crisis within the previous two weeks; mental health disorders; depression; a history of suicide ideation or attempt; a history of self-harm; and alcohol or illicit drug use at the time of suicide.
- Suffocation and firearms were the most common suicide methods.

BUILDING COPING SKILLS IN ELEMENTARY SCHOOLS

Students begin to develop attitudes toward school, self, peers, social groups and family during the elementary school years. They also begin to develop decision-making skills, communication and life skills, as well as coping mechanisms. Because of this, elementary school counselors and teachers can be influential in the social and emotional development of elementary students. The elementary school years also offer an opportunity for early intervention and behavioral health screenings.

Utah is one of 27 states that does not require grade schools to have a counselor. The American School Counselor Association recommends one counselor for every 250 students. In 2017, Utah had one counselor for every 2,333 elementary students. In 2018, the Utah legislature passed a bill that authorizes the Utah State Board of Education to award grants to schools for additional funding for mental health services in grade schools. Priority is given to elementary schools that demonstrate a high percentage of students exhibiting risk factors for childhood trauma. The second priority is given to schools with a high percentage of students experiencing intergenerational poverty. Counselors can also teach students how to build emotional skills.

Other states are addressing suicide prevention more directly. Washington is piloting a suicide prevention program for 5th grade students taught by elementary school counselors. The program, Riding the Waves, addresses emotional development, depression and anxiety. The overall intent of the program is to build emotional developmental skills and coping mechanisms to prevent suicide ideation before students transition to middle and high school, where the risk is much higher.

Some states provide funding to implement the Good Behavior Game, which is a behavioral management program used in 1st and 2nd grade classrooms in the U.S., Canada and in some European countries. Students with disruptive and aggressive behavior demonstrate risk factors for mental and behavioral problems later in life. The program has been extensively studied in the U.S. and international settings and shows lower rates of drug and alcohol use disorders, antisocial personality disorder, violent crimes and suicide ideation.

Sources: American School Counselor Association, Utah State Board of Education, Addiction Science & Clinical Practice Journal, Suicide Prevention Resource Center, Crisis Connections.

The study also examined teens hospitalized for self-inflicted injury. This group also saw significant increases in Utah but contrasted sharply with those who took their own lives in that nearly three-fourths of them were girls and the method selected was predominantly poisoning. A 2015 survey of Utah school students showed about 19% had considered suicide in the previous year.[20]

While suicide rates for teens tend to be significantly lower than other age groups, the opportunities for intervention are higher because of youth participation in the school system.[21] Furthermore, suicide is a leading cause of death among teenagers in the U.S. and the leading cause of death among teenagers in Utah.[22]

School-Based Strategies

Utah Prevention Programs. Utah requires schools to implement suicide prevention programs and policies. In 2014, Utah passed a law that requires secondary schools to have suicide prevention and intervention policies in place. The bill gives discretion to schools to choose their own suicide prevention program, as long as it is evidence-based or an emerging best practice. In the 2018, the Utah Legislature increased funding for programs from $500 per school up to $1,000.[23]

The three most widely used programs in Utah schools are Question, Persuade, Refer (QPR), Hope for Tomorrow and Hope Squads.

QPR is an evidence-based practice listed in the National Registry of Evidence-based

Practices and Policies. The program teaches gatekeepers the warning signs and risk factors of suicide, how to question people that exhibit warning signs, persuade them to seek help and know where they can refer people in need of help. The program is often taught in under an hour and to relevant community gatekeepers, such as public safety personnel, community organization leaders and church leaders.

Hope for Tomorrow was developed in Utah by students, PTA representatives, parents, educators and other professionals. It is a suicide awareness program that is designed to educate students, parents and teachers on signs and symptoms of mood disorders, substance use disorders and eating disorders. It can be used beyond the school setting.

Hope Squad is a peer-to-peer prevention program that trains selected students to recognize peers at risk for suicide and to refer at-risk students. Hope Squads are in 207 schools spread throughout every school district in Utah. Hope Squad members are nominated by their peers and trained by school counselors. Hope Squad members identify advisors (counselors, psychologists, social workers, teachers, staff or parents) to the program. The role of a Hope Squad student is to help persuade at-risk students to seek help from advisors, who can then refer them to the appropriate mental health services.

Teacher Training. In 2012, Utah passed the first major piece of suicide prevention legislation targeted at public school students; it requires licensed school staff to take suicide prevention training. Since then, 20 additional suicide prevention bills have been passed. Of the suicide prevention laws in Utah, eight are school-based; the remaining 13 address a range of different areas such as health care or firearm-related policies. In Utah, and most other states, youth suicide prevention policies are predominantly focused on schools because youth spend a significant amount of time there. Teachers and other authority figures are in a unique position to identify risk factors for suicide and make the appropriate referrals with the proper training. Some states mandate suicide prevention for school personnel.

Utah joins 15 other states that mandate suicide prevention training for school personnel, but not every year. Utah requires that all teachers, administrators and counselors take two hours of suicide prevention training every three to five years during their re-licensure period. Nationally, both the duration of training and gaps between each training vary significantly. Some states require training only once for all newly employed licensed teachers and principals. Most of the 15 states require training for licensed staff every five years. Among the Mountain States, Wyoming is perhaps the most aggressive, requiring eight hours of suicide prevention training every four years for all teachers and administrators.

Eleven other states nationwide are still more aggressive, mandating suicide prevention training for school personnel every year. State training requirements vary widely, with some annual training requirements more comprehensive than others.[24] For instance, Tennessee requires two hours of suicide prevention training each year for all school employees. Kentucky, on the other hand, requires two hours of a "self-study review of suicide prevention materials" for middle and high school teachers, counselors and principals.[25] While most states require a minimum of two hours, Nebraska requires just one hour.

The American Foundation for Suicide Prevention recommends that all school per-

sonnel receive two hours of suicide awareness and prevention training each year.

It should be noted the Utah School Superintendents Association plans to ask the Utah Legislature for $30 million for school safety personnel that includes school counselors, social workers and mental health services.[26] However, the request is broadly targeted at school safety overall.

Student Training. In addition to teacher training, students can also be trained in suicide prevention, typically through the health curriculum. In Utah, health education is required for 3rd through 6th grades. One of the mandated lessons for each year is teaching students ways to improve mental health. While the health education curriculum for 3rd through 6th grade has not been updated in over two decades, the Utah State Board of Education is working with Utah's suicide prevention specialist to update the health education standards. The new standards will begin health education in kindergarten and will progress through 6th grade. Each year will have standards for mental and emotional health.

In 2017, the Utah State Board of Education removed any requirement for school districts to require health education as a necessary course for 7th- and 8th-grade students to graduate. After receiving public pushback, the board revised its position. The new rule states that students must take health education in 7th or 8th grade, but it does not specify how many credit units are required. In other words, there is no set time commitment. Students can have the requirement waived if students and their families can show an acceptable equivalent.

In Utah high schools, students are required to take 0.5 credits (one half of one year) from 9th through 12th grade. The Utah State Board of Education anticipates completing a draft of new health education standards for elementary and secondary schools in fall 2018.

Like Utah, several other states incorporate suicide prevention training for students in the health curriculum. However, some states are more expansive. For instance, in 2016 New York became the first state to require all elementary, middle and high schools to teach mental health to students as part of each school's health curriculum every year. The law is in response to well-established research that unrecognized, untreated and late-treated mental illness substantially elevates the risk of mental health crises, such as suicide and self-injury.[27] On average, the first signs and symptoms of mental illness begin at age 14; 22% of youth aged 13 through 18 experience a serious mental health issue at some point.[28] Because these years are challenging for youth in general, adults often mistake symptoms of a serious issue for adolescent transitions. At the same time, youth with mental health issues often lack the knowledge base necessary to understand what is happening to them.

Targeting Groups Considered "High-Risk." In addition to general awareness training for students and teachers, some suicide prevention strategies address targeting youth groups that are identified as being at a higher risk. The American Foundation for Suicide Prevention identify eight student populations that are considered to have an elevated risk for suicidal behavior. They are: youth living with mental or substance use disorders; youth who engage in self-harm or have attempted suicide; youth in out-of-home settings (e.g. juvenile justice system of child welfare); youth experiencing homelessness; American Indian/Alaska Native youth; LGBTQ (lesbian, gay, bisexual, transgender, or questioning); youth

bereaved by suicide; and youth living with medical conditions and disabilities.[29]

In addition, while not listed by the American Foundation for Suicide Prevention, Utah has efforts underway that respond to research suggesting that childhood sexual abuse is a strong predictor for suicidal ideation.[30] In 2014, the Utah Legislature passed a bill for charter and school districts to train all school personnel in childhood sexual abuse prevention beginning in the 2016 school year.[31] Pennsylvania encourages training for school personnel on childhood sexual abuse as part of their suicide prevention efforts.[32]

Kentucky has taken it further by requiring all school personnel to complete training upon hire and every two years in child physical, sexual and emotional abuse and neglect.[33] There is enormous variability in states' approach to childhood sexual abuse prevention and training, largely because there is not enough data to recognize any programs as fully evidence-based. In fact, Stewards of Children is the only childhood sexual abuse prevention and intervention program for educators that is available nationally and considered a promising, evidence-backed program. This is based on a study done in Texas. In 2015, after a one-year follow-up survey of nearly 80,000 educators in Texas, teachers increased their reports of childhood sexual abuse to authorities by 283% compared to the prior year.[34]

WHAT CAN SCHOOL DISTRICTS DO?

School districts have a significant role to play in preventing suicide. In Utah, public secondary schools are required to have suicide prevention policies in place. National suicide prevention organizations recommend that school districts have districtwide policies with a suicide prevention coordinator responsible for planning and coordinating the implementation. Individual schools can designate a staff member as the school suicide prevention coordinator, acting as the point of contact with suicide prevention policy implementation.

In addition to school-level coordinators, the national organizations recommend creating a district-level suicide prevention task force that consists of administrators, parents, teachers, school-employed mental health professionals, representatives from community suicide prevention services and mental health experts. The task force can serve as the body to help implement policies and provide advice on how to train school personnel to identify youth who are at a high risk for suicide.

If a student is deemed to be at risk of suicide, relevant school staff are advised to provide heightened supervision. Appropriate referrals may be made, and schools can ask the student's permission to talk with outside care providers. In addition to prevention strategies, school districts should adopt policies that address in-school suicide attempts and policies if a suicide death does occur.

Source: American Foundation for Suicide Prevention, American School Counselor Association, National Association of School Psychologists, The Trevor Project.

In some cases, more data collection may lead to new policy approaches. One of the requests from the Utah Suicide Prevention Coalition is data collection on youth sexual orientation and gender identity. This is also a recommendation from the Utah Teen Suicide Prevention Task Force. Utah is one of 20 states that does not include sexual orientation and gender identity questions on the Youth Risk Behavior Surveillance System, a national survey intended to identify trends in health risk behaviors among youth.[35] In 2016, the Utah Department of Health sought to include a question regarding sexual orientation and gender identity, but received pushback out of concern that the question was too sensitive for students. In response to the Governor's Suicide Prevention Task Force recommendations, the Utah Department of Human Services, the Utah State Board of Education and the Utah Department of Health will partner in 2019 to start collecting data on sexual orientation through the Student Health and Risk Prevention survey, which is administered with active parental consent.[36] Survey data has led to new policies in other states. For instance, North Carolina started administering trainings for school personnel upon learning how many LGBTQ students attended the state's schools.

Youth involved with the juvenile justice are another youth population states are targeting because risk factors for youth involved with the justice system appear to

be far more prevalent than the general population.[37] For instance, the National Alliance on Mental Illness notes that of the two million youth arrested in the U.S. every year, about 70% have a mental health condition.[38] In Utah, past research has found these youths account for the majority of suicide deaths. (See sidebar for further discussion.)

Schools play a unique and powerful role in the disciplinary future of students, and some states are completing revising their school disciplinary structures. In 2018, Connecticut passed legislation that requires a plan to implement the School-Based Diversion Initiative statewide. The initiative is in response to a disproportionately high percentage of juvenile court referrals from schools involving students with disabilities and behavioral health conditions.

The aim of the plan is to reduce juvenile justice involvement among students with mental health needs. Connecticut's model trains all school personnel in mental health and juvenile justice, behavioral management strategies and accessing community-based treatment, among other issues. The initiative enhances partnerships with community-based mental health services, provides model disciplinary policies for schools, and trains law enforcement, families and schools on disciplinary approaches. The program has been so successful at reducing juvenile court referrals that Connecticut has provided consultations to other states, counties and districts across the U.S. Seven other states have replicated the program.[39]

Still, other states are finding ways to identify and track students considered to be at an elevated risk for any reason. Maine implemented the Youth Suicide Prevention Referral and Tracking Toolkit, which trains school personnel to collect data on students that may be at risk and pass the information to the appropriate personnel. Administrators of the program found schools with poorly coordinated data collection often lack clear suicide prevention guidelines and communication protocols.[40]

Beyond the Schoolhouse: Additional Strategies for Youth

Research shows that reducing access to firearms is also an important piece of a comprehensive suicide prevention strategy.[41] The majority of Utah's youth suicides are by firearm. There are two types of legal mechanisms aimed at reducing access to firearms: safe storage laws and child access prevention laws.

In 2014, Utah passed a law that created a voluntary firearm safety program for suicide prevention. It included a provision to distribute a safety brochure to suicide prevention participants such as health care providers, school districts and gun retail shops. It also provided funding for the state to purchase cable-style gun locks to distribute for free.

Unlike Utah, some states have mandatory safe storage laws. For instance, Massachusetts requires that all firearms must be stored with a locking device. California,

Connecticut and New York require that guns be stored if in the presence of those who cannot legally use them. California also requires that all firearms be sold with a gun lock or approved safety device. Connecticut, New Jersey and New York require that all hand guns be sold with a gun lock.[42]

Utah is one of 27 states that has a child access prevention law in place. Utah's law prohibits parents from providing a firearm to a minor who has been convicted of a violent felony or adjudicated in juvenile court for an offense that would be a felony if the minor were an adult.[43] But some states' child access prevention laws are far more punitive. For instance, California imposes criminal liability on an adult when a minor is likely to gain access to a negligently stored firearm, regardless of whether the minor actually gains access.[44]

STRATEGIES TARGETED AT COLLEGE STUDENTS

Suicide among college-aged adults in Utah has steadily increased during the past decade. (See Figure 8.) Nationally, suicide is the leading cause of death for college students.[45] The Center for Collegiate Mental Health found that of the students who sought mental health services, 34% seriously considered attempting suicide in 2017, up from 24% in 2010.[46] In Utah during the 2015 academic year, more than

Suicides among college-aged adults have fluctuated, but the number has more than doubled since 2002.

Figure 8: Utah College-Age Adult Suicides, 1999-2017, ages 18 to 24
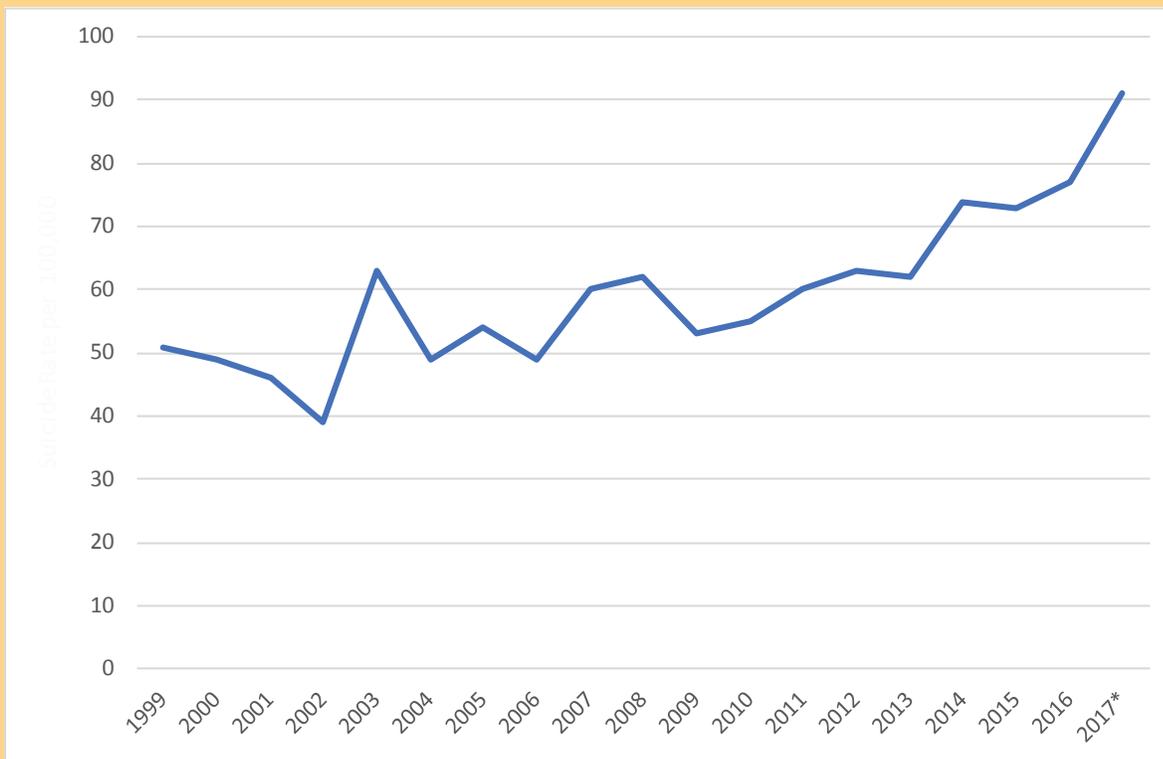
* Preliminary 2017 data.

Source: Utah Violence & Injury Prevention Program.

100 students enrolled in higher education institutions attempted suicide, and 15 students took their own lives.[47]

It should be noted this report focuses on the college students in this age range because, like public schools, universities have a unique access point to screen students and provide mental health services on campus. The strategies aimed at working age adults are more applicable to those in the 18 to 24 age range who are not enrolled in a post-secondary institution.

Intervention in Higher Education Institutions

Utah does not have legislation in place that requires higher education institutions to provide suicide prevention training. There are nine states that require public university and college campuses to provide suicide prevention and mental health materials. The requirements range widely. For instance, Arkansas requires that every higher education institution provide each full-time student with information about available mental health and suicide prevention services. Indiana's policies take it a step further and require every post-secondary institution to adopt a suicide awareness campaign policy that includes crisis intervention services, suicide hotline numbers, and available mental health programs both on and off campus. The state also requires institutions to adopt effective communication strategies following a suicide death. Some states passed legislation that requires a comprehensive analysis of suicide and prevention among all higher education institutions within the state. One state is specifically addressing medical students, as they have been suggested as a high-risk group among college students.[48]

Since Utah does not impose suicide prevention initiatives on public postsecondary institutions, Utah Foundation examined suicide prevention efforts and policies of higher education institutions in the state, including all public, private and non-traditional/online institutions in Utah. Of the eight public colleges and universities, suicide prevention efforts vary widely. On one end of the spectrum, one university has a website that lists mental health services available on campus. On the other end, two universities have crisis intervention teams dedicated to suicide prevention, with the rest of the schools falling somewhere in between. Utah's private universities vary, but most have webpages with resources available both on and off campus. None of the non-traditional/online institutions that operate in Utah offer resources regarding suicide prevention. However, a few have webpages addressing available counseling services.

Additional Strategies. In 2015, the Utah Student Association conducted a statewide survey and found, on average, a college student in Utah must wait four to eight weeks to get an appointment at a counseling center. At some schools, the wait can be up to 11 weeks.[49] This is due in part to increased demand from students. The Center for Collegiate Mental Health found that anxiety and depression are the two primary reasons students seek care. Furthermore, the percentage of students seeking counseling for mental health concerns steadily increased between 2010 and 2017, from 46% to nearly 53%.[50] Over the same time, the proportion of students reporting that they seriously considered attempting suicide increased from 24% to 34%. The proportion of students who attempted suicide increased from 8% to 10%.

In the 2017 General Session, the Utah Legislature passed a resolution declaring mental health among college students a public health crisis.[51] The resolution

urged government departments, local mental health agencies and providers, mental health advocates and higher education institutions to collaborate to improve mental health service deficiencies and improve prevention and crisis intervention strategies.

The Utah State Board of Regents is taking steps to encourage Utah's eight public colleges and universities to address student mental health. The Regents' Mental Health Working Group recommends four areas for Utah higher education institutions to place their focus: assess the mental health needs of students, improve mental health education, increase access to mental health services, and develop institutional five-year mental health implementation plans. (See sidebar for further discussion.)

Some states are taking strides to increase access to mental health services. In 2015, New Jersey signed into law the Madison Holleran Suicide Prevention Act, which requires all New Jersey colleges to provide students with round-the-clock access to health care professionals that have mental health training.[52] In 2017, New York allocated $300,000 to fund a pilot program that provides tele-counseling mental health services to students that go to public colleges.[53] California is going another route. The state passed legislation that requires every public college to have one counselor for every 1,500 students, which is the ratio recommended by the International Association of Counseling.[54] The greatest challenge to increasing mental health services is funding.[55]

Nationally, higher education institutions have taken several approaches to addressing growing demand for mental health services, increasing counseling staff, referring students to local service providers, assigning on-campus case managers and training paraprofessionals on campus to help reduce backlogs.

To help cover costs, some colleges require students to pay a fee for every visit. While most students have health insurance through their parents, there may be impediments to using it. For instance, some students may have a high deductible plan and pay the fee out-of-pocket.

In other cases, college campuses simply lack the administrative capabilities to accept private insurance. As a result, some campuses are referring students to third-party providers off-campus. Some institutions limit the number of sessions students can receive.[56]

Some campuses nationally are implementing campus-wide mental health awareness campaigns, promoting student mental health clubs and providing voluntary online mental health screening tools. Colleges and universities are also expanding workshops and group therapy sessions, holding community forums and partnering with community services.

UTAH BOARD OF REGENTS MENTAL HEALTH WORKING GROUP RECOMMENDATIONS

The Chief Student Affairs Officers of Utah System of Higher Education (USHE) institutions agreed to systematically assess the mental health needs of their students. All public higher education schools will conduct the assessment at the same time and repeat it every three years. In addition, each USHE school will collect utilization rate and wait time data and report it to the Board of Regents annually. Another recommendation is to improve the mental health education at USHE institutions by requiring faculty, staff and students to receive mental health literacy training. The group also recommends increasing access to mental health services through on- and off-campus providers. Finally, to evaluate whether USHE student mental health services and wellness improve over time, each institution is advised to develop a five-year mental health implementation plan.

Source: Utah Board of Regents Mental Health Working Group.

Utah adult suicides have more than doubled since 2003.

Figure 9: Utah Suicides among Adults, 1999 to 2017, ages 25 to 64
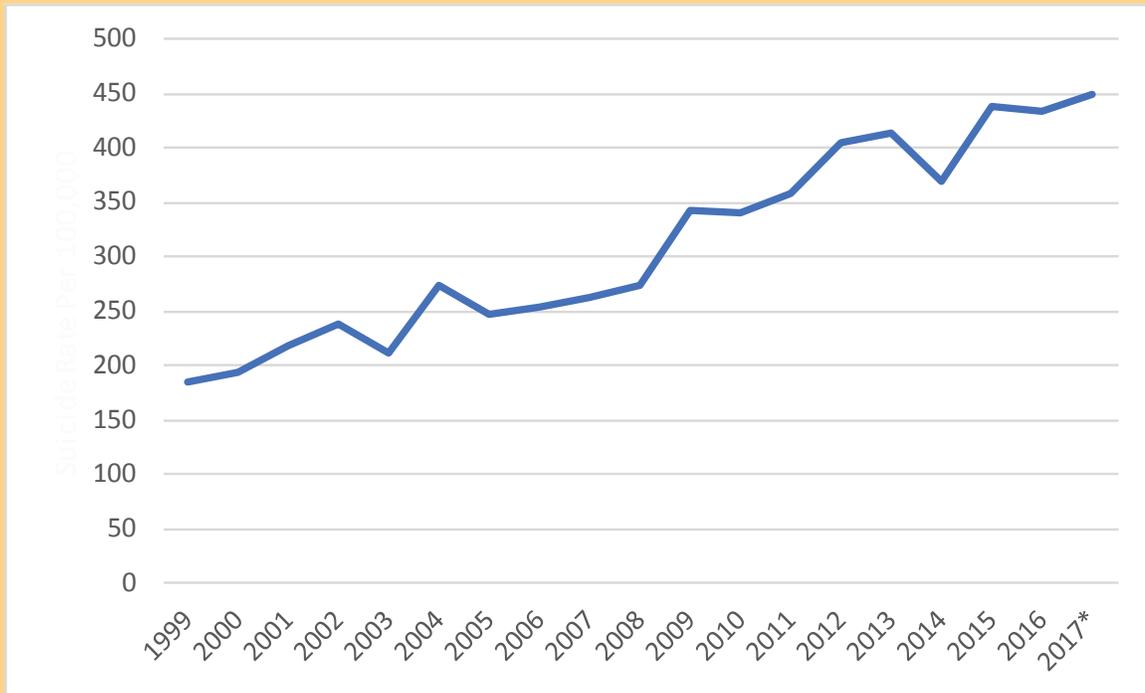
* Preliminary 2017 data.

Source: Utah Violence & Injury Prevention Program.

STRATEGIES TARGETED AT ADULTS

Suicide rates among working age and older adults are much higher than youth and young adult rates. The number of suicides among working age adults has also significantly increased since 1999. (See Figure 9.) There has also been a significant recent increase in suicides among older Utahns. (See Figure 10 on the next page.)

Educational Efforts

Public Awareness Campaign. Nationally, and in Utah, suicide among adults is predominantly a male phenomenon. The Utah Suicide Prevention Coalition launched a statewide campaign to help remove the stigma around men's mental health. The campaign, called Man Therapy, uses humor to deal with difficult mental health issues and promote help-seeking behavior. And it appears to be accomplishing the intended effect. From 2012 to 2018, 800,000 people visited the site, nearly 325,000 completed the 20-question quiz that evaluates their mental health, and 33,000 accessed crisis services through the website.[57] The campaign is also reaching the targeted audience, with about 78% of viewers male. Utah is also focusing on specific professions where there is a higher likelihood of interaction with people at risk of suicide.

Health Care Professionals. Utah has suicide prevention strategies in health care, and with good reason. Researchers performed a review of studies from 2000 to 2017 that examined the rates of contact with primary and mental health providers before

Suicides among older Utah adults have more than doubled since 2009.

Figure 10: Utah Suicides among Older Adults, 1999 to 2017, ages 65+
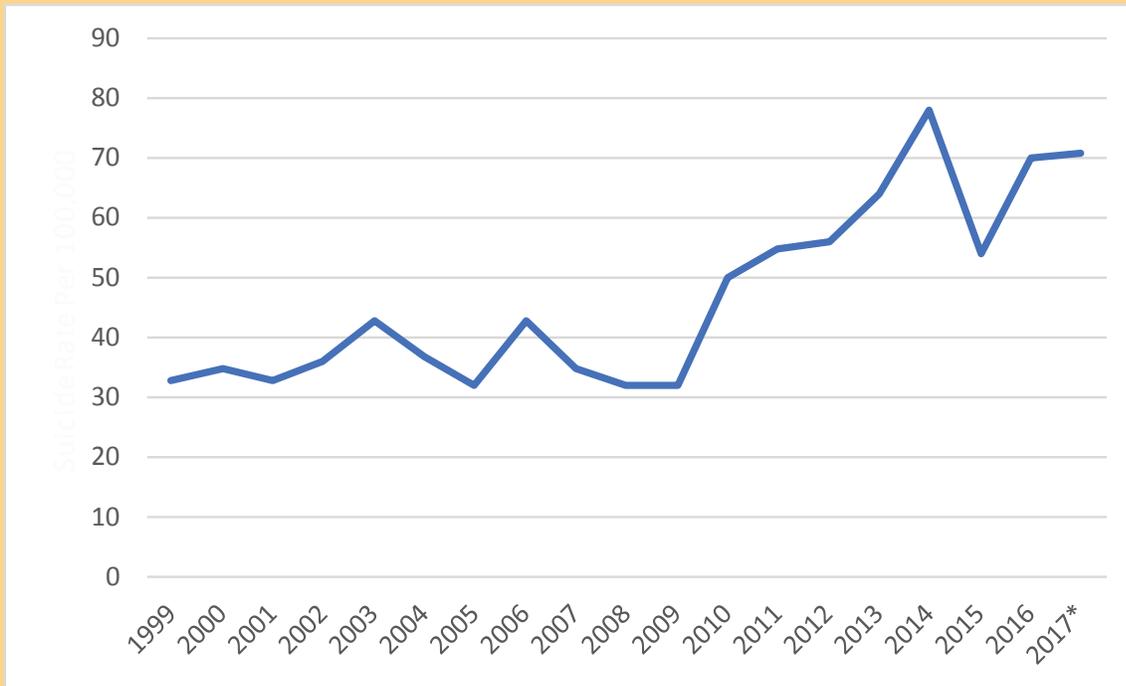
* Preliminary 2017 data.

Source: Utah Violence & Injury Prevention Program.

suicide. They found that contact with a health care provider was highest in the year before suicide, with an average contact rate of 80%.[58] About 57% of individuals contacted a mental health provider over their lifetime and 31% in the last year.

In 2015, Utah passed legislation that requires behavioral health professional to complete a course in suicide prevention to obtain or renew their license.[59] Utah is one of seven states that require suicide prevention training among behavioral health care providers. Each state differs as to how frequently training is required, for how long and who is required to take it.

Utah also provides suicide prevention training for entire health systems, known as the Zero Suicide Framework. The Zero Suicide Framework is a systemwide, organizational commitment to suicide prevention in health and behavioral health care systems. While Utah does not require that health systems implement the Framework, the Utah Department of Human Services provides free technical support for health organizations looking to do so.

Health care professionals can play an important role in preventing suicide in older adults. In particular, training staff in senior living communities and senior centers is an essential element in suicide prevention.

Criminal Justice Professionals. Utah also has suicide prevention strategies in the criminal justice system. Utah has a Crisis Intervention Academy that includes in-

struction for police officers from physicians, psychologists, licensed social workers, specialists and police instructors. The goal of the program is to increase officers' awareness of mental health issues and provide them with effective techniques when encountering individuals having a mental health crisis. This program is implemented in 67 of the 136 local law enforcement agencies in the state.[60]

Additional Strategies

Expanding Mental Health Services. It appears that there are not enough mental health professionals in Utah to meet the needs. In 2016, the Utah Medical Education Council reported there were 5,026 full-time mental health professionals in Utah, which equates to 209 providers per 100,000 people.[61] This is significantly lower than the national average. According to the Bureau of Labor Statistics, there are 311 providers per 100,000 people in the U.S. Furthermore, according to Kaiser Family Foundation data, Utah has less than 50% of the psychiatrists required to meet the needs of the state's population.[62]

To help address the shortage, Utah in 2016 created state income tax credits for psychiatrists and psychiatric mental health nurse practitioners. However, the tax credit is only available under certain conditions and for a limited number of years. Psychiatrists qualify if they begin a new practice in Utah, serve an underserved population in the state, or are retired and volunteering to assist an underserved population.[63]

Another strategy to help meet demand is through Utah's Medicaid program. In 2018, Utah passed legislation that requires the Utah Department of Health to file a waiver with the Centers for Medicare & Medicaid Services to allow Utah to include mental health crisis services in the state Medicaid benefits.[64] Another 2018 legislation requires both the state Medicaid program to reimburse providers for telepsychiatric appointments. Additionally, it requires health insurance plans that cover mental health services to also cover telepsychiatric appointments.[65] There may be additional areas of suicide prevention to consider.

Given the wide range of possible factors that may lead an individual to suicide, individualized care by highly qualified mental health professionals is fundamental to prevention.

Firearm Safety. Restricting access to firearms among adults can be a significant prevention strategy. Utah includes a suicide prevention module within the concealed carry permit course. Additionally, Utah's Safe Harbor law allows gun owners to store their firearms with law enforcement if there is a concern that someone in the household is in danger of harming themselves or others.[66]

Financial Support. Some research indicates suicide rates increase during economic recessions marked by high rates of unemployment, job losses and economic instability.[67] While the Centers for Disease Control and Prevention note more research is needed to determine the extent with which economic factors increase suicide risk, they suggest strengthening economic supports can provide a buffer against increased suicide risk.[68] Some of their recommendations include strengthening household financial security through increasing unemployment benefits and other forms of temporary assistance.

Some research suggests that the longer an individual is unemployed, rather than just job loss, the greater the suicide risk.[69] Another study found job insecurity and

psychological distress from loss of income might be a suicide risk.[70] Losing a sense of purpose, which is a pillar of mental health, may also play a role.

Housing Stabilization. Integrating suicide prevention resources with financial and fore-closure services may help reduce the risk of suicide.[71] For instance, individuals may be referred to support services when they are projected to lose a home. The National Strategy for Suicide Prevention recommends training a range of financial professionals who can recognize risk factors and warning signs prior to eviction or foreclosure.

Workplace Strategies. Suicide prevention programs in workplaces, detention facilities and residential settings can help bring awareness to risk factors and warning signs and may encourage help-seeking behavior.[72] For instance, there are some occupations that have significantly higher rates of suicide than others. Nationally, individuals working in farming, fishing and forestry have the highest rate of suicide overall at 84.5 per 100,000. The second highest was construction and extraction (52.5), and installation, maintenance and repair (47.5). Overall, the lowest rate of suicide is found in the education, training and library occupational group (7.5).[73] These findings suggest there are possible workplace approaches to suicide prevention related to industries with higher suicide rates.

One example would be implementing Employee Assistance Programs which are voluntary, work-based programs that offer free and confidential assessments, short-term counseling, referrals and follow-up services to employees who have personal or work-related problems.[74] Counselors are equipped to handle a broad array of mental and emotional well-being, such as alcohol and substance abuse, stress, grief, family problems and psychological disorders. Workplace wellness programs can also be a good option for advancing education and training on suicide risk factors and warning signs. Other options include mental health screening tools and web-based resources for mental health information. While these are tools employers can implement, the state could encourage the use of these tools or provide funding to advance them.

Community-Based Strategies. There are also opportunities for the state to support community-based suicide prevention policies. Community-based strategies should be comprehensive, evidence-informed and addresses the risk and protective factors unique to the perspectives, culture, readiness and needs of the community.[75] The National Action Alliance for Suicide Prevention notes suicide prevention strategies need to be selected based on a tailored assessment of each community. For instance, Alaska is expanding efforts to offer peer support services throughout the support, but particularly in rural communities. Peer support programs help promote physical, emotional and mental health well-being.[76]

MEASURING SUCCESS

One of the key problems bedeviling suicide prevention efforts is a lack of data collection surrounding their success. That makes it difficult to identify and implement effective practices. It also makes it difficult to improve existing practices.

To improve the long-term success of its suicide prevention programs, Utah should consider taking the lead on measuring outcomes. The point of suicide intervention efforts is not to create an industry of prevention programs, but to yield results.

Without a commitment to identifying what works – and then investing in what

works – progress on suicide prevention will depend too heavily on speculation and chance. Utah's position as the crossroads of the Mountain States suggests that it might be the logical location to lead the way nationally on research into best practices to improve mental health.

CONCLUSION

The causes of suicide are as complex as they are varied. Theories abound as to risk factors and protective factors. Obviously, mental health is at the center of the story. And while some people are more likely than others to take their own lives, not well understood are the processes leading someone to deem suicide to be an option in response to suffering.

However, it is perfectly clear that suicide deaths occur predominantly among men, that suicide rates are particularly high in Utah and the Mountain States, and that those rates have been trending upward since the turn of the millennium. The extent to which the high rates may point to regional factors – including elevation, rurality, gun ownership, race/ethnicity and substance abuse – is a matter for debate. Regardless, the situation calls for a particularly robust response in this part of the country.

Unfortunately, there is often a lack of clear data on successful strategies. For that reason, policymakers must identify a range of promising options and engage in suicide prevention on multiple fronts. These include: ensuring that various professionals, from educators to law enforcement, receive solid training; educating the public about warning signs and options to seek help; and investing in high-quality mental health services.

In doing so, it is important that these efforts not be undertaken for their own sake, but to yield results. It is therefore critical that policymakers invest in carefully measuring the outcomes of suicide prevention efforts, whenever possible.

It is also critical that mental health issues are addressed with gusto, with the aim of keeping people off the trajectory of considering suicide in the first place. This effort requires involvement from a cross-section of society – parents, friends, educators, health professionals, those involved in the criminal justice system, finance professionals, employers, policymakers, community leaders and even the media. Ultimately, it will require decision-makers in the public and private sectors to promote individualized access to highly qualified mental health professionals.

APPENDIX A: SUICIDE RATES BY COUNTY 2012 TO 2016 (PER 100,000)

Suicide Ranking	County	Suicide (Crude) Rate
1	Carbon	42.44
2	Emery	37.84
3	Sevier	35.38
4	Beaver	34.18*
5	Duchesne	33.87
6	Juab	32.36
7	Garfield	31.87*
8	Millard	31.74
9	Grand	29.7
10	Uintah	28.09
11	Kane	27.72*
12	Weber	24.2
13	Washington	23.56
14	Sanpete	23.12
15	San Juan	21.88
16	Box Elder	21.35
17	Salt Lake	20.83
18	Tooele	20.33
19	Wasatch	18.64
20	Iron	17.59
21	Summit	15.89
22	Davis	14.88
23	Utah	14.5
24	Cache	13.47
25	Morgan	11.27
N/A	Daggett	**
N/A	Piute	**
N/A	Rich	**
N/A	Wayne	**

*Coefficient of variation >30%, deemed unreliable by Utah Health Department Standards.

** Estimate suppressed.

Source: Public Health Indicator Based Information System (IBIS), Utah's Public Health Data Resource, last updated April 9, 2018.

APPENDIX B: SUICIDE AND RURALITY IN THE MOUNTAIN STATES

State, by Suicide Rate   Ranking by % Rural Population

1.	**Montana**	**5**
2.	Alaska	14
3.	**Wyoming**	**13**
4.	**New Mexico**	**30**
5.	**Utah**	**43**
6.	**Idaho**	**21**
7.	**Nevada**	**48**
8.	Oklahoma	16
9.	**Colorado**	**37**
10.	South Dakota	7
17.	**Arizona**	**42**

Sources: CDC; U.S. Census Bureau, "Percent urban and rural in 2010 by state."

APPENDIX C: DO GUN OWNERSHIP RATES ALIGN WITH STATES' SUICIDE RATES?

Suicide Rates and Gun Ownership by State
(Suicide rate rankings are from 2016; % gun ownership is from 2013.)

Suicide ranking	% Gun ownership	Ranking
1. Montana	**52.3**	**6**
2. Alaska	61.7	1
3. Wyoming	**53.8**	**5**
4. New Mexico	**49.9**	**7**
5. Utah	**31.9**	**27**
6. Idaho	**56.9**	**3**
7. Nevada	**37.5**	**16**
8. Oklahoma	31.2	29
9. Colorado	**34.3**	**21**
10. South Dakota	35.0	19
17. Arizona	**32.3**	**25**

Sources: CDC; Kalesan, Bindu et al., "Gun Ownership and Social Gun Culture," Injury Prevention, June 2015.

APPENDIX D: MOUNTAIN STATES HAVE RELATIVELY HIGH PROPORTIONS OF NON-HISPANIC WHITES, NATIVE AMERICANS OR BOTH

(Suicide rate rankings are from 2016; demographics are from 2013.)

State, by Suicide Rate	% Non-Hispanic White (rank)	% American Indian (rank)
1. **Montana**	87.0 (7)	6.6 (5)
2. Alaska	62.5 (37)	14.7 (1)
3. **Wyoming**	84.1 (9)	2.6 (8)
4. **New Mexico**	39.4 (48)	10.4 (2)
5. **Utah**	79.7 (18)	1.5 (16)
6. **Idaho**	83.1 (11)	1.7 (12)
7. **Nevada**	54.1 (46)	1.6 (14)
8. Oklahoma	67.5 (30)	9 (3)
9. **Colorado**	69.4 (29)	1.6 (13)
10. South Dakota	83.3 (10)	8.9 (4)
17. **Arizona**	56.7 (42)	5.3 (7)

Sources: CDC; U.S. Census Bureau.

APPENDIX E: SUICIDE AND THE PROPORTIONS OF NON-HISPANIC WHITES AND NATIVE AMERICANS AT THE UTAH COUNTY LEVEL

White (non-Hispanic/Latino) Population By County in Utah (2017)

% White (non-Hispanic/Latino) Ranking	County	% White (non-Hispanic/Latino)	Suicide Ranking
1	Morgan	95.1	25
2	Daggett	93.3	*
3	Juab	92.5	6
4	Sevier	91.8	3
5	Wayne	91.7	*
6	Rich	91.6	*
7	Kane	91.1	11
8	Emery	91	2
9	Piute	89.6	*
10	Garfield	88.5	7
11	Box Elder	87.3	16
12	Iron	86.1	20
13	Sanpete	85.8	14
14	Duchesne	85.4	5
15	Summit	84.8	21
16	Washington	84.6	13
17	Beaver	84.5	4
18	Davis	84.2	22
19	Cache	84	24
20	Tooele	83.5	18
21	Millard	83.4	8
21	Wasatch	83.4	19
22	Carbon	83	1
23	Utah	82.4	23
23	Grand	82.4	9
24	Uintah	81.7	10
25	Weber	76.5	12
26	Salt Lake	71.8	17
27	San Juan	43.5	15

American Indian/ Alaskan Native Population By County in Utah (2017)

% American Indian/ Alaskan Native Ranking	County	% American Indian/ Alaskan Native	Suicide Ranking
1	San Juan	49.9	15
2	Uintah	7.8	10
3	Grand	4.7	9
4	Duchesne	4.5	5
5	Garfield	2.6	7
6	Iron	2.5	20
7	Millard	2.1	8
7	Beaver	2.1	4
8	Washington	1.7	13
9	Carbon	1.6	1
9	Sanpete	1.6	14
9	Kane	1.6	11
10	Sevier	1.5	3
11	Salt Lake	1.4	17
12	Weber	1.3	12
12	Daggett	1.3	*
13	Tooele	1.2	18
13	Juab	1.2	6
14	Box Elder	1.1	16
14	Wayne	1.1	*
14	Emery	1.1	2
15	Cache	1	24
15	Piute	1	*
16	Wasatch	0.8	19
16	Utah	0.8	23
17	Davis	0.7	22
17	Rich	0.7	*
18	Summit	0.5	21
19	Morgan	0.4	25

* Estimate suppressed/ unavailable.

Source: U.S. Census Bureau; QuickFacts; accessed June 21, 2018, https://www.census.gov/quickfacts/fact/table/US/PST045217.

ENDNOTES

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