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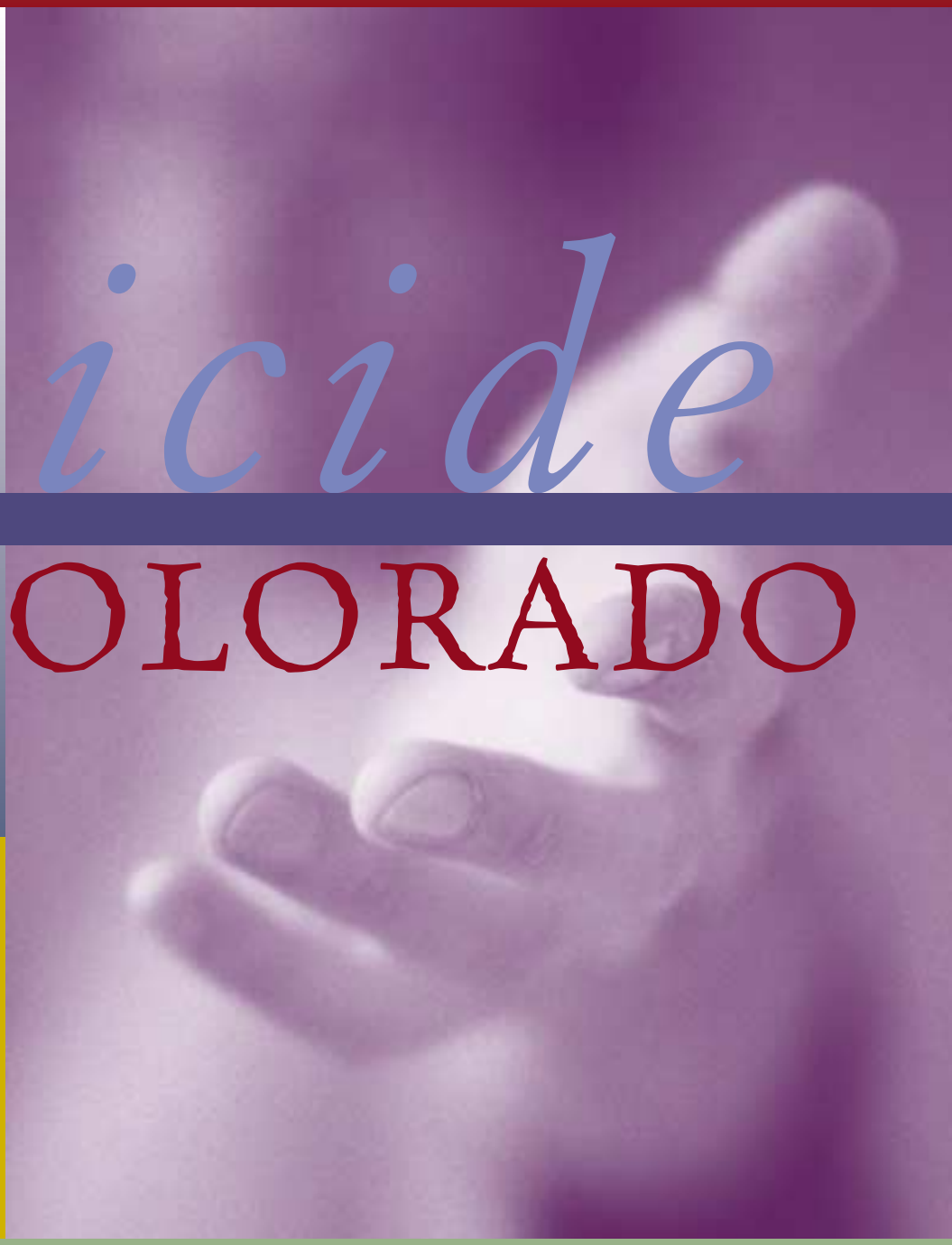
# *suicide*
# IN COLORADO



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# SUICIDE
## IN COLORADO

**The Colorado Trust**

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# acknowledgements

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# To Our Readers

IN MARCH 2001, THE COLORADO TRUST AND THE COLORADO OFFICE OF SUICIDE PREVENTION JOINED TOGETHER TO COLLECT AND ANALYZE INFORMATION ABOUT SUICIDE IN COLORADO. AS THE NINTH-LEADING CAUSE OF DEATH IN OUR STATE, THIS DEVASTATING PROBLEM DESERVES CONSIDERABLE ATTENTION.

We could not have predicted that six months later the urgency to address this crisis would be even greater. In the aftermath of the September 11th terrorist attacks and rising unemployment, mental health experts warn that the already alarming rate of suicide in this country could worsen. This is indeed a disturbing prediction in light of current statistics:

- *30,000 people commit suicide each year in the United States – a rate of 11 in every 100,000 Americans, or one person every 17 minutes.*
- *The Rocky Mountain region has the highest suicide rate in the country.*
- *In 1998, the suicide death rate in Colorado was more than 14 people per 100,000, making it the 12th highest in the country and 36% higher than the national average.*
- *An estimated 9,600 Coloradans seriously contemplate suicide each year and approximately one-half to two-thirds of these individuals are not being treated for their suicidal symptoms.*

We also know that very few people commit suicide because of a single event in their lives. U.S. Surgeon General David Satcher has noted that an estimated 90% of suicides are associated with a history of mental illness – usually depression – or substance abuse. Indeed, new findings suggest that there are ways to identify and treat those who are at risk of attempting suicide, meaning that we can help to prevent these tragic events.

In 2000, The Colorado Trust began to address this issue by partnering with Mile High United Way. This school-based program – located in Denver Public Schools' North and East High Schools, and at Urban Peak, a shelter for homeless youth – seeks to reduce teen suicide. This is but one example of approximately 200 suicide-prevention programs available in Colorado. Additionally, the state has taken steps to address suicide in a comprehensive manner. During the 2000 legislative session, the Colorado Office of Suicide Prevention was established within the Colorado Department of Public Health and Environment. One of the top identified priorities for this office was to gain a full understanding of the suicide-related needs and resources in the state. Guided by an advisory group comprised of Colorado's leading mental health and suicide experts, this report provides that foundation. It identifies people who are most at risk of committing suicide, existing suicide-prevention resources and gaps that need to be addressed. Two companion publications provide additional information – the Suicide Prevention and Treatment Programs in Colorado report details suicide-related statistics and prevention resources for each Colorado county, and the Suicide in Colorado Summary provides key findings of this report.

It is our sincere hope that this report serve as a useful resource for mental health professionals, physicians, and agencies and organizations in communities across Colorado that provide help to suicidal individuals and their families, and that it be used as a means to increase awareness about this tragic problem.

John R. Moran, Jr.
President and CEO
The Colorado Trust

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# introduction

## The Scope of the Problem of Suicide

**In the United States, someone commits suicide every 17 minutes, a death that is frequently unexpected, but at the same time preventable.[1] Those recovering from a suicide attempt suggest that suicide can appear as a way to escape great mental anguish and an overwhelming sense of hopelessness. In the words of Andrew Solomon,**

> *Nourishing your own misery can grow too wearisome to bear; and that tedium of helplessness, that failure of detachment, can lead you to the point at which killing the pain matters more than saving yourself.*[2]

We know, based on past research, a number of factors that place individuals at risk for suicide, including depression, other mental disorders and substance abuse. Differing profiles of suicides have also been developed for men and women, for the young and old and for those of different racial and ethnic backgrounds. While the individual paths people take to suicide may differ, the common factors leading to it are well known.

Prevention options are becoming more broadly available. Screening tools to detect suicide planning, coupled with advances in the treatment of mental illness, create more optimism that suicide deaths can be prevented. Prevention programs have been established in schools, and training to identify those at suicide risk has been offered to a wide variety of community service providers. Much more, however, needs to be done.

This report summarizes what is known about suicide in Colorado. Its purpose is to provide an overview of the population at risk, the available resources and the options for prevention. As the first section will document, Coloradans are at particular risk for suicide. In 1998, Colorado's suicide death rate was the 12th highest in the country and suicide was the ninth-leading cause of death. By studying factors associated with high rates of suicide attempts and deaths, we have begun to identify factors that place individuals at higher risk of attempting suicide, as well as the protective factors that can minimize this risk.

While the components of a community response to suicide have been identified, stakeholders contacted as part of this report indicate that existing resources are only somewhat adequate to address the problem. Greater public awareness, more widespread suicide training and better links among service providers are strategies that have been recommended. Professional service providers can also benefit from improved screening and assessment tools and clinical modalities for treating suicide behaviors and mental health more generally.

This report provides a compendium of information about the nature of the suicide problem in Colorado, along with its potential solutions. The evidence suggests that any strategies undertaken by communities, service organizations or government agencies need to be broad in focus, multifaceted in their objectives and inclusive of a broad array of stakeholders.

## The Economic Impact of Suicide

As the ninth-leading cause of death in Colorado, suicide has a significant impact on our economy. Yet the full burden of these costs is difficult to determine because suicide deaths are under-reported and there is no system to track the number of uncompleted suicide attempts in a thorough manner. By one estimate, the total burden of suicide on the U.S. economy in 2000 was estimated at $125.8 billion.* [3]

In considering the cost of illness, economists divide costs into direct and indirect categories. For suicide, direct costs are defined as health care expenses and the costs associated with autopsies and criminal investigations. Indirect costs are related to estimates of productive life lost (assuming employment until age 65 and based on the present value of lost earnings).

Both suicide deaths and attempts are costly to Colorado – an estimated $59 million in direct costs and $571.3 million in indirect costs in 2000. Suicide attempts are more prevalent than suicide deaths and thus entail larger direct costs. In contrast, suicide deaths result in high indirect costs due to the premature loss of life.[4]

*Estimated Direct Economic Burden of Suicide in Colorado*

| | Annual Direct Costs | Estimated Annual Number in Colorado | Total Annual Direct Costs in Colorado |
|---|---|---|---|
| Costs per Attempted Suicide | *$6,000* | *9,600 attempts* | *$57.6 million* |
| Costs per Completed Suicide | *$2,371* | *600 deaths* | *$1.42 million* |

*Estimated Indirect Economic Burden of Suicide in Colorado*

| | Annual Indirect Costs | Estimated Annual Number in Colorado | Total Annual Indirect Costs in Colorado |
|---|---|---|---|
| Costs per Attempted Suicide | *$31,616* | *9,600 attempts* | *$303.5 million* |
| Costs per Completed Suicide | *$446,314* | *600 deaths*** [5] | *$267.8 million* |

**Note: The original cost estimates for the suicide burden in the United States, presented by Miller et al. in 1995, were inflated by 13% to reflect changes in the consumer price index between 1995 and 2000.*

***Note: The Centers for Disease Control and Prevention suggests that an estimated 16 suicide attempts occur for every suicide death (see http://www.surgeongeneral.gov/library/calltoaction/fact1.htm). Others have suggested the ratio of suicide attempts to completions is between 18 to 25 attempts per one suicide death. For the purposes of this report, the ratio of 18 suicide attempts per one suicide death was used.*

## The National and State Responses to Suicide

Formal suicide prevention efforts in the United States date back to the establishment of the first suicide prevention center in Los Angeles, California, in 1958. Over the next two decades, the Center for Studies of Suicide Prevention was instituted at the National Institute of Mental Health and two national suicide organizations were formed: the American Association of Suicidology and the American Foundation for Suicide Prevention. Throughout the 1980s, several national and international conferences focused on promoting suicide prevention as a national priority, culminating in the most recent report from the U.S. Surgeon General calling for a national strategy for suicide prevention.

The Surgeon General's report details 11 national goals that have been designed to transform attitudes, policies and services related to suicide prevention. This national strategy advocates that a wide variety of public- and private-sector organizations and individuals coordinate their efforts toward comprehensive suicide prevention plans at the community level including health, mental health, public health, justice and law enforcement, education and social services, as well as faith communities, civic groups and business. While advocating a broad array of potential strategies, the Surgeon General's report suggests that the ultimate selection of appropriate strategies be left up to individual communities based on local needs and an assessment of the potential effectiveness of specific programs within differing community contexts.[6]

Seventeen states have developed suicide-prevention plans and the remaining states are in the process of developing such plans or have established a task force to start the development process.[7] Colorado's work in the suicide area began in 1998 with the formation of the Governor's Suicide Prevention Advisory Commission. The Commission's report, released in November 1998, led to the formation of the Office of Suicide Prevention within the Colorado Department of Public Health and Environment in 1999 with an annual budget of $157,846, an amount that was increased to $300,830 for fiscal year 2001-02. This report builds on the Commission's work and is designed to create a more thorough picture of suicide in Colorado and to identify the resources currently available to address this public health problem.

This report is divided into four sections. Section 1 examines the scope of the suicide problem in Colorado and looks at factors that have been linked to higher-than-expected suicide attempts and deaths. Section 2 reviews existing suicide-prevention resources in Colorado. Section 3 provides a review of research findings on suicide-prevention programs and services, and outlines the key components of a comprehensive prevention system. Section 4 includes detailed strategies for combating the suicide problem in Colorado.

key facts

## Key Facts About Suicide

- *Suicide deaths and attempts are a major public health problem in the state of Colorado, affecting youth, the middle-aged and older adults.*
- *An estimated 9,600 Coloradans seriously contemplate suicide each year, and approximately one-half to two-thirds of these individuals are not treated for their suicidal symptoms.*
- *The largest number of suicide deaths occur among middle-aged men, between 35 and 44 years of age, with the risk for suicide increasing for those with a mental illness or who abuse alcohol. Middle-aged men who commit suicide are also the least likely of all groups to seek mental health treatment prior to their death.*
- *The risk of suicide death increases among men as they age and is particularly high among men who are 75 years or older. Most of the elderly who die from suicide are white and are not married.*
- *The risk for suicide among women does not increase as they age.*
- *Suicide is the second-leading cause of death among youth, although suicide deaths among youth are relatively infrequent compared with other age groups.*
- *Young people, particularly young women, are much more likely to be hospitalized for a suicide attempt than older adults.*
- *Risk factors for suicide can be characteristics of an individual (being male, having a mental or physical illness, having a family history of suicide), situational (living alone, being unemployed) or behavioral (alcoholism, drug abuse or owning a gun).*
- *Individuals at risk for suicide tend not to seek treatment for their emotional problems. Getting this population into care is an important goal of suicide prevention efforts.*
- *National data suggest that only one-third (36%) of people at risk for suicide visited a medical care provider within the past year. Only 10% report having seen a physician for their emotional problems and an additional 29% visited a physician for other reasons.*

# section 1

## WHO IS AT RISK FOR SUICIDE?

### Understanding Suicidal Behavior

**Suicide is defined as intentional actions designed to take one's life and, as such, includes a continuum of behaviors that differ according to the seriousness of the suicide intent and the effectiveness of the method used.** Data from the Colorado Department of Public Health and Environment show that a small portion of Coloradans die from suicide, although many more make plans for or attempt suicide. The actual number of suicide deaths is likely to be underreported since suicide deaths are, to an unknown degree, misclassified as homicide or accidents.[13] [14]

- *In any given year, roughly 600 Coloradans can be expected to die by suicide.*[15]
- *On average, 2,838 Coloradans are hospitalized per year because of suicide attempts.*[16]
- *About 6,700 patients considered to be suicidal seek treatment annually from Colorado's public mental health system (or 8% of the total number of patients seen in a year). Of these patients, 2,500 admit to having a serious suicide plan and 4,200 have made a suicide attempt.*[17]
- *As many as 9,600 Coloradans are estimated to be seriously contemplating suicide, with between one-half to two-thirds of these individuals not being treated for their suicidal symptoms by any formal service provider.*[18] [19]

While a previous suicide attempt increases the risk of a subsequent suicide death, the vast majority of individuals who die from suicide do so in their first attempt. A fatality review of suicide deaths in Colorado between 1990 and 1993 showed that only 22% of those who died had made a previous suicide attempt and just over a third (37%) had made a previous suicide threat.[20] In other words, many suicide completers are successful on their first attempt and give no direct indication of their intent to die through verbal or written messages. Suicides that are fatal also tend to involve highly lethal methods such as firearms and hanging.

**IN SECTION 1**

Many suicide attempters do not die from suicide. In fact, research suggests that only 15% of those who have made a previous nonfatal attempt will eventually die by suicide. While those who die from suicide are likely to be males whose risk of a suicide death increases with age, people at risk for suicide attempts tend to be younger females who try to overdose on drugs or medications.[21]

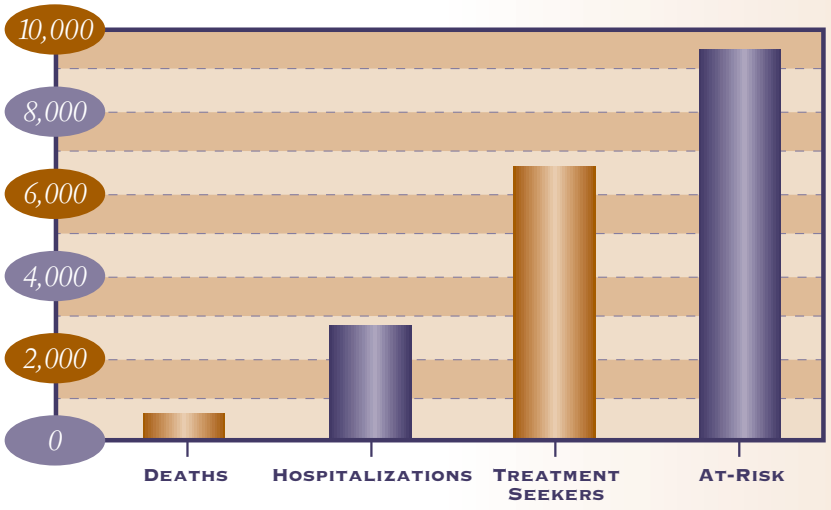
## Risk Factors/ Protective Factors

*A suicide's excuses are mostly by the way. At best they assuage the guilt of the survivors, soothe the tidy-minded and encourage the sociologists in their endless search for convincing categories and theories. They are like a trivial border incident which triggers a major war. The real motives which impel a man to take his own life are elsewhere; they belong to the internal world, devious, contradictory, labyrinthine and mostly out of sight.*[22]

While multiple biological, psychological, social and economic factors increase a person's risk of suicide, suicide remains relatively rare, making it challenging for clinicians to identify those who are at greatest risk for a suicide attempt or death. Examining suicide deaths retrospectively, researchers throughout the country have found 15 factors that appear to be most directly connected to suicide risk (listed in the accompanying chart). Many individuals share these risk factors without contemplating suicide. Because different individuals can uniquely experience these risk factors, no single risk-scoring system has been widely accepted within the mental health clinical community.[23]

Risk factors for suicide can be characteristics of an individual (being male, having a mental or physical illness, having a family history of suicide), situational (living alone, being unemployed) or behavioral (alcoholism/drug abuse or owning a gun). Sometimes triggering events can increase the risk for suicide (the

*Estimates of Deaths[1], Hospitalizations[2], Treatment Seekers[3] and At-Risk Population[4] Due to Suicide in Colorado*




*Sources: [1]Colorado Department of Public Health and Environment, 2001*
*[2]Colorado Department of Public Health and Environment, 2001*
*[3]Colorado Department of Human Services, 2000*
*[4]Maris, et al, 2000*

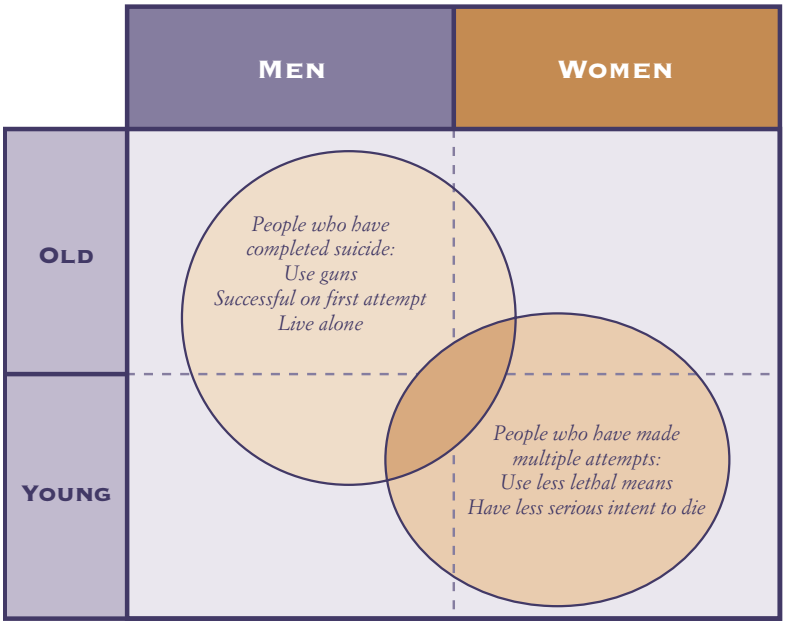
death of a loved one or the loss of a job) whereas for other individuals, the cumulative effect of multiple factors over time can lead to a suicide attempt.

Assessments of factors that increase the risk for suicide must be balanced by a consideration of what can protect an individual from a suicide death. For people at risk for suicide because of mental disorders, a wide array of effective medications are available, including drugs that can address acute situations (such as anti-anxiety/ anti-panic medications), as well as those more appropriate for chronic mental conditions.[24] Other protective factors are:

- *Easy access to effective clinical care for mental, physical and substance use disorders*
- *Support for seeking help for suicidal ideation*
- *Restricted access to lethal means of suicide*
- *Strong connections to family, health professionals and the community*
- *Support through ongoing medical and mental health care relationships*
- *Skills in problem solving, conflict resolution and nonviolent handling of disputes*
- *Cultural and religious beliefs that discourage suicide and support self preservation.*[25]

Some of these are characteristics of more resilient individuals, while others such as social support are part of the environment in which the individual resides. What complicates suicide assessments is that, as with the risk factors previously identified, the preventive strength of these protective factors is likely to vary from individual to individual.

## *Relationship of Attempted Suicide to Completed Suicide*




*Source: Adapted from Maris, et al, 2001*

## *Common Single Predictors of Suicide*[26]

| PREDICTORS | FINDINGS |
|---|---|
| Major depressive illness, affective disorder | Two-thirds of suicide completers have a primary depressive disorder |
| Alcoholism, drug abuse | 25% of suicide completers were found to have been alcoholics |
| Suicide ideation, talk, preparation | Sometimes the best and only predictor of suicide |
| Prior suicide attempts | 15% of nonfatal suicide attempters will eventually die by suicide |
| Use of lethal means | On average, 60% of fatal suicides are committed by firearms |
| Isolation, living alone, loss of support | 29% of suicide completers had lost a significant rejection relationship in the year prior to their death; 22% lived alone at the time of their death[27] |
| Hopelessness | Considered by some to be the primary predictor of suicide behavior |
| Being an older, white male with risk increasing with age | 50% of all suicide deaths are completed by white males 35 years and older |
| History of suicide in the family | 11% of suicide completers had at least one other suicide among their first-degree relatives in one study |
| Work problems, unemployment | 33% of those who commit suicide are unemployed at the time of their death |
| Marital problems | Suicide rates are higher among those who are divorced or widowed |
| Stress, negative life events | Triggering events such as death of a loved one or the loss of a job can precede suicide |
| Anger, aggression, impulsivity | Chemical imbalances in the brain have been linked to higher increases in violent suicides |
| Physical illness | 30%-40% of all suicide completers have some significant physical illness at the time of death |
| Co-occurrence of the above risk factors | Having more than one risk factor increases the overall risk for suicide fivefold[28] |

## Risk for Suicide, by Group

Predicting Coloradans who are at risk for suicide can be done in two ways: by counting the absolute number of people who die by suicide and by calculating the rates of suicide death relative to the number of people within each population group being considered. For example, the number of males who are 85 years or older who commit suicide (109 from 1991-2001) is relatively small compared to males between 35 and 44 years of age who died by suicide (1,106 from 1991-2000). Yet the suicide death rate for men 85 years and older (91.65 per 100,000) far exceeds that of any other age-gender group. In other words, a large number of men over 85 years of age commit suicide compared to all men who are in this age group, as shown in the chart on the following page. Knowing the number of deaths in any given age group allows service providers to plan for the level of suicide-related services that may be needed, while understanding suicide death rates pinpoints the groups most at risk.

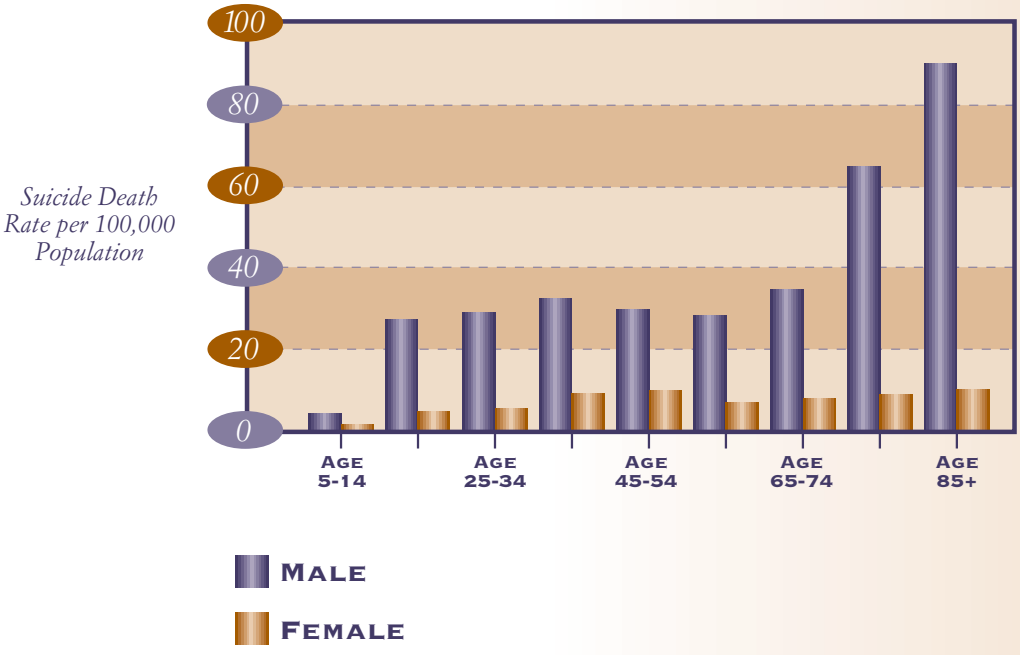
As noted above, the largest number of suicide deaths occurs among men between 35 and 44 years of age. Between 1991 and 2000, 18% of all suicide deaths in Colorado occurred within this category, representing an average of 110 deaths per year. By contrast, women in the same age group totaled only 5% of all suicide deaths during this time period and account for low numbers of suicide deaths across all age groups.

Men of all ages are at greater risk of dying by suicide than women. The risk of a suicide death increases among men as they age and is particularly high among men who are 75 years and older, whereas for women, suicide risk remains relatively constant over time.*

Data on hospitalizations for suicide attempts reveal a different picture. Young people are much more likely to be hospitalized for a suicide attempt than those of older age groups. Further, hospitalization rates for suicide attempts are much higher among young women than among young men. Part of these stark differences between age-gender groups for suicide deaths versus suicide attempts is due to the suicide methods that are employed. While nearly 60% of suicide deaths can be attributed to firearms, individuals hospitalized for suicide attempts are most likely to have experienced drug or medication overdoses.[29]

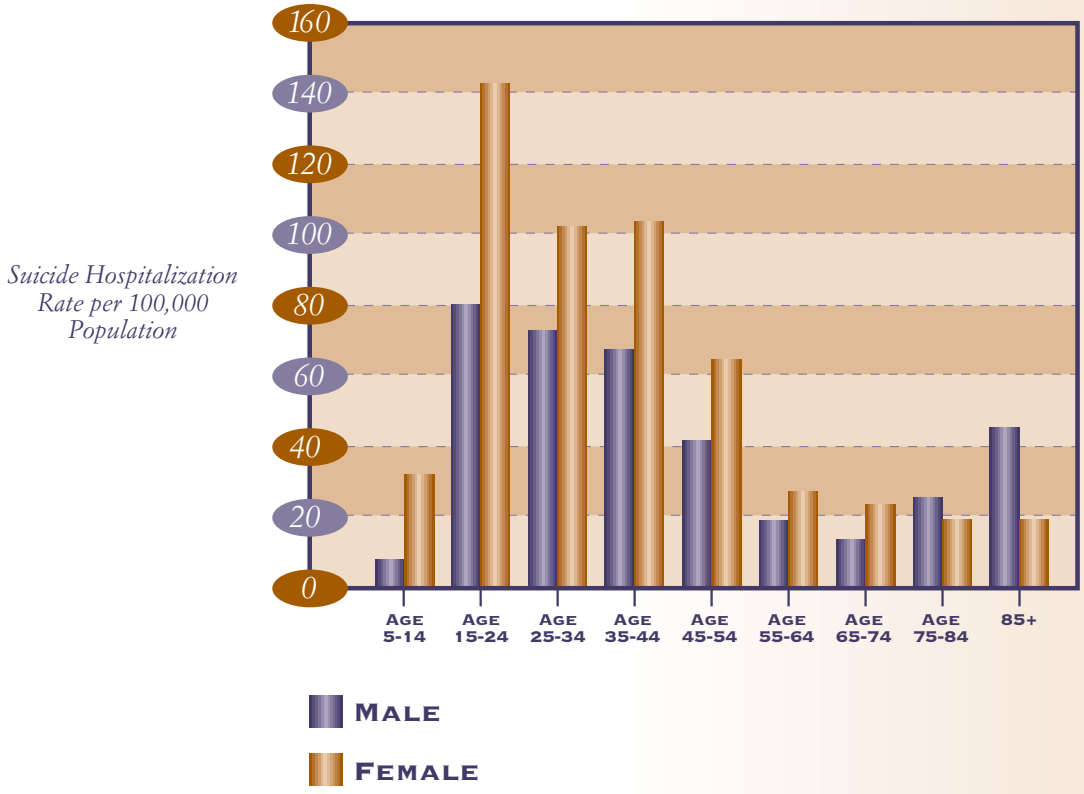
**Note: The data were derived from 10 years of suicide death statistics compiled by the Colorado Department of Public Health and Environment. The rates are age- and gender-specific and have been adjusted to reflect the respective populations in each age-gender category; they have also been standardized to the year 2000 population in the U.S.*

## *Suicide Death Rates by Age and Gender for the Years 1991-2000*




*Source: Population-weighted, age-adjusted suicide death rates were calculated from mortality data provided by the Colorado Department of Public Health and Environment*

## *Suicide Hospitalization Rates by Age and Sex, 1995-2000*




*Source: Trauma Registry Data from the Colorado Department of Public Health and Environment*

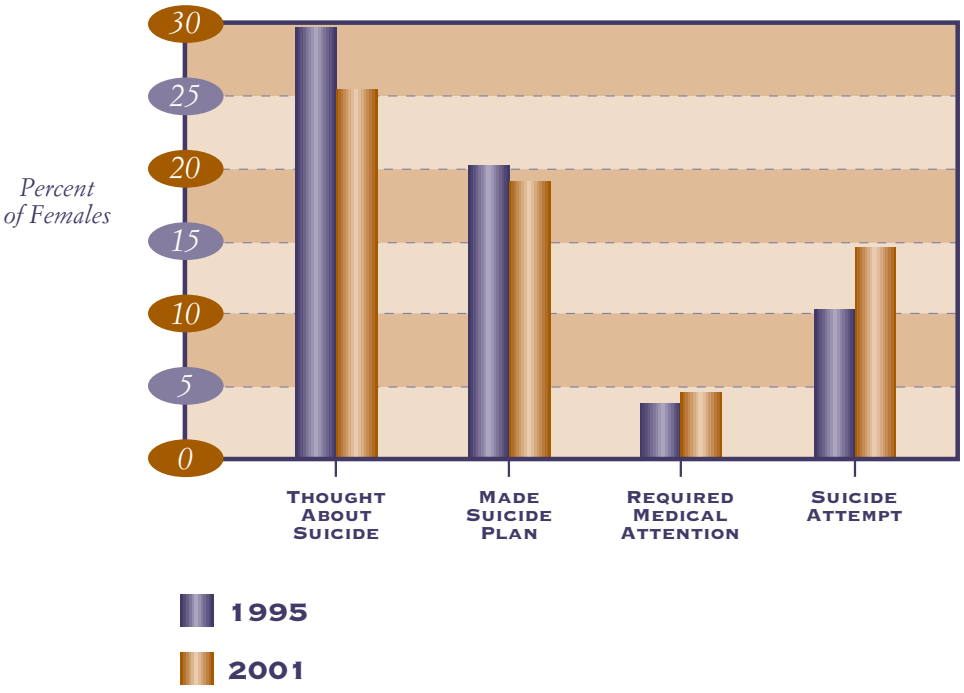
## Youth and Young Adults

Suicide deaths among young people remain relatively infrequent compared with other age groups, yet suicide represents the second-leading cause of death in youth. In addition, survey results, such as those from the Youth Risk Behavior Survey, demonstrate that alarmingly large numbers of young people in Colorado and throughout the country report having made serious plans for suicide attempts. Common factors that appear to precipitate suicide among youth include a variety of stressful life events such as: disciplinary crises, interpersonal loss, interpersonal conflict, humiliation and shame. Suicidal youth are also more likely to be depressed, abuse alcohol and have a history of aggressive and antisocial behavior.[30] Despite these commonalities, however, predicting the seriousness of suicide intent among youth has proven difficult.

Adolescent boys show patterns of suicide that differ strongly from adolescent girls. While boys are more likely to complete suicide, girls think about suicide and make suicide plans more often. Girls are also more likely to be hospitalized for a suicide attempt.[31]

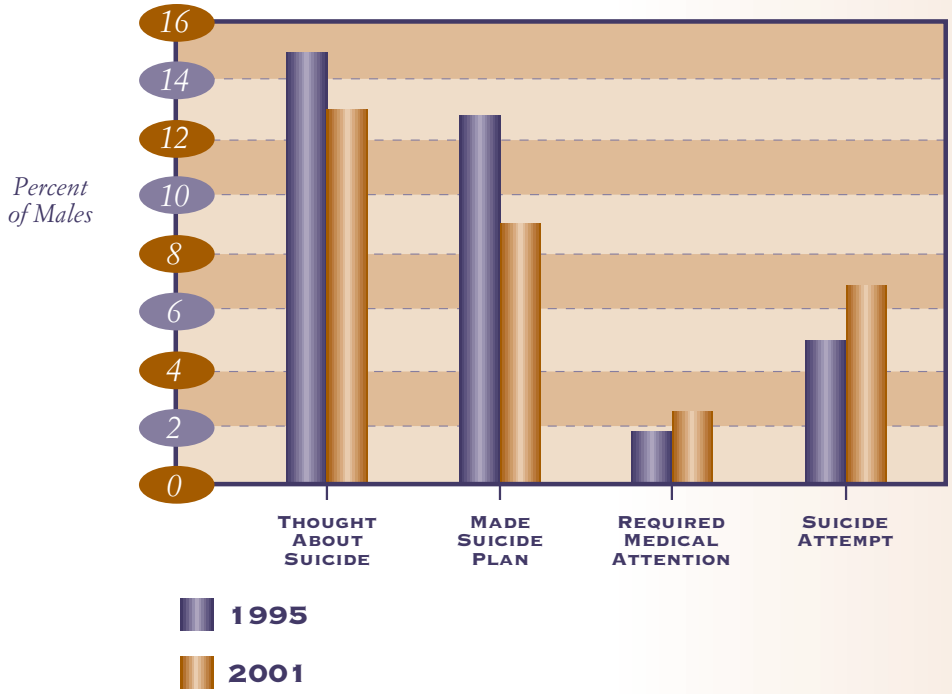
Several factors can help explain why suicide behavior varies between young boys and girls. While young girls are much more likely to suffer from depression than boys, they also are more likely to internalize their emotions and to find support through relationships, while being less likely to use lethal methods such as guns. Young boys, by contrast, are more likely to be outwardly aggressive, abuse alcohol and use firearms, leading to a higher rate of fatal suicide attempts.[32]

*Suicide Ideation and Behavior for Young Females (Grades 9-12) in Colorado, 1995-2001*




*Source: Youth Risk Behavioral Surveillance System, 1995 & 2001*

## *Suicide Ideation and Behavior for Young Males (Grades 9-12) in Colorado, 1995-2001*




*Source: Youth Risk Behavioral Surveillance System, 1995 & 2001*

National evidence suggests that suicidal behavior may be a particular problem among young people of color. In one study, Hispanic teenage girls, in particular, were found to have the highest rates of depression and serious suicide planning and attempts. Within that study, one-fourth of Hispanic girls had made a concrete plan to kill themselves compared with one-sixth of African-American girls (16%) and one-fifth of non-Hispanic/white girls (18.5%) in school.[33] Other groups of young people for whom the risk of suicide is high are:

- *African-American males aged 15-19*[34]
- *Gay, lesbian and bisexual youth*[35] [36]
- *Native American youth.*[37]

Addressing youth suicide poses particular challenges since research has demonstrated that suicidal youth are not likely to seek help for their suicide issues. Innovative approaches to screen and assess youth and help youth workers recognize suicide warning signs are being promoted as ways to reach those youth who are most at risk for both suicide attempts and deaths.

## The Middle-Aged

Typically, suicide deaths occur among white men whose average age is 40. As with all age groups, the risks for suicide increase among middle-aged people who have mental illness and/or who abuse alcohol. Men, in particular, are at risk for having major midlife depressions that are untreated and undermedicated. Other losses during the middle of life that can exacerbate suicide risk include: the loss of a spouse, deteriorating health, downward job mobility and social isolation.[38]

Suicide risk for men also has been linked to greater levels of violence and aggression. Men are more likely to die by suicide because they use firearms and other violent methods to kill themselves.[39] Further, middle-aged men are most likely to be the perpetrators of family murder-suicide, in which one member kills all other family members and subsequently commits suicide. Fathers who assume this role are typically depressed, paranoid and/or intoxicated.[40]

Studies of middle-aged men who have committed suicide suggest that this group is the least likely to have sought mental health treatment prior to death.[41] Women, by contrast, have been found to be higher utilizers of professional services, as well as more frequent users of suicide-prevention centers.[42]

Outreach toward people at risk for suicide who are not receiving appropriate treatment is one of the prevention strategies recommended by the U.S. Surgeon General, David Satcher, as part of his proposed national strategy for suicide prevention. Evidence from other parts of the world confirms that access to services can help reduce suicide. Regions with higher rates of inpatient and outpatient treatment for depression, in particular, have been found to have lower suicide rates.[43]

## Older Adults

The highest risk for suicide death is found among older adults – even though the actual number of suicide deaths among the aged remains low as this age group is small compared to the middle-aged. Among all age-gender groups, white males over the age of 80 are at the greatest risk.

Most older adults who die from suicide are white and not married (e.g., single, widowed or divorced). Depression has been found in 71% of completed suicide victims between the ages of 75 and 92. Another important factor in up to a third of suicides among older people is the presence of chronic physical illness. Older adults can also be distinguished by their choice of a suicide method. Compared with other age groups, they are more likely to use firearms, which more often result in death.[44]

Challenges faced by older people include: declining physical health, multiple life losses (e.g., retirement, widowhood, financial changes), increasing social isolation and higher rates of depression.[45] Older adults who are more susceptible to suicide appear more likely to experience a sense of hopelessness in the face of these life changes, when compared to people of other groups.[46]

In the weeks preceding their deaths, older adults often contact a primary care doctor, rather than a mental health specialist. Since older adults who are at highest risk of suicide commonly have diagnoses of depression, improved screening and treatment for depression among older adults should be promoted in primary-care practice settings.[47]

## Trends in Suicide Death in Colorado

Colorado's suicide death rate is among the highest in the country, ranking 12th in the nation in 1998. In 1999, the suicide death rate in Colorado was 14.4 per 100,000, a figure 36% higher than the national suicide death rate of 10.6. In general, suicide rates are higher in Western states, although the reasons for this are unclear.[48]

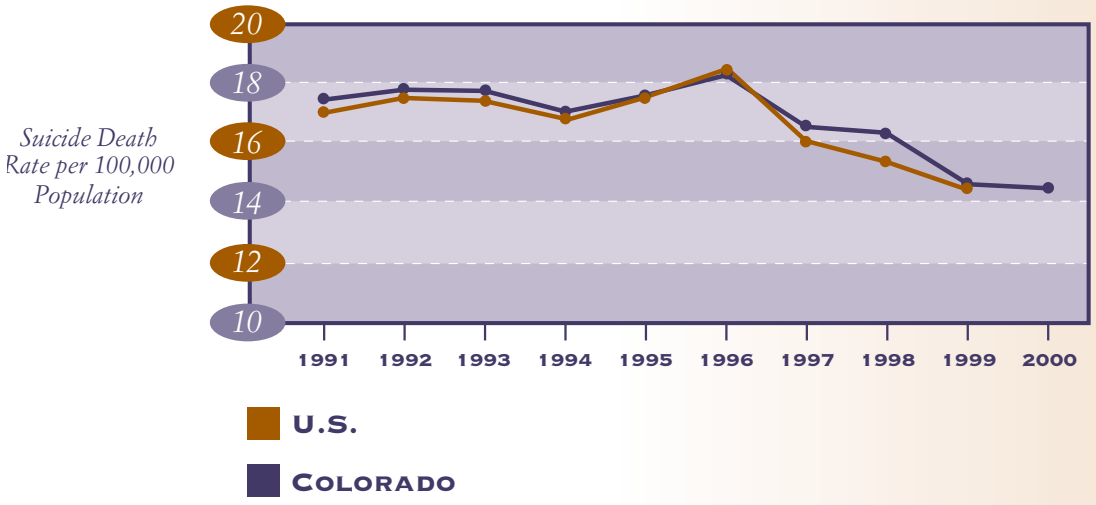
Across the United States and in Colorado, the suicide death rate has declined slightly in recent years. This downward trend may reflect the healthy economy and lower unemployment experienced in the late 1990s. Despite this decline, Colorado continues to record roughly 600 deaths from suicide per year. The number of Coloradans dying by suicide has ranged from 580 in 1991, to 688 in 1996; there were 617 suicide deaths reported in 2000.[49]

Suicide was the ninth-leading cause of death and the leading cause of injury-related death in Colorado in 1998. Suicide is the second-leading cause of death among children, teenagers and young adults.

Nationally, suicide rates among children (ages 10-14) increased 100% between 1980 and 1996.[50] An analysis of trends in Colorado suggests that between 1991 and 2000, suicide rates for youths between 15-19 and 20-24 years of age have declined, while the rate for children between the ages of 10 and 14 has remained relatively low and constant.

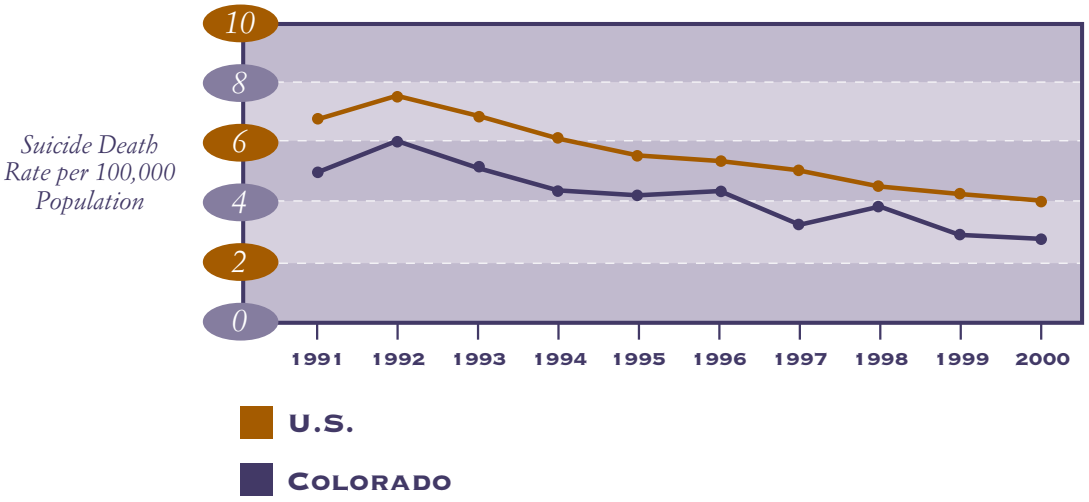
From the perspective of racial and ethnic differences, the highest rates for suicide deaths in Colorado are among whites (17.8 per 100,000). By comparison, the rates for Hispanics (11.9), African-Americans (9.1), Native Americans (10.3) and Asians (8.0) are much lower. Between 1991 and 2000, out of a total of 6,225 suicide deaths recorded in the state, 86% were white, 9% were Hispanic and 2% were African-American. Suicide deaths among Native Americans and Asians represented less than 1% of the total deaths during this time. An examination of trends in suicide deaths for each of these groups suggests that all are consistent with the general downward trend throughout the state.

*Suicide Death Rates: 10-Year Trends for Colorado[1] and U.S.[2]*



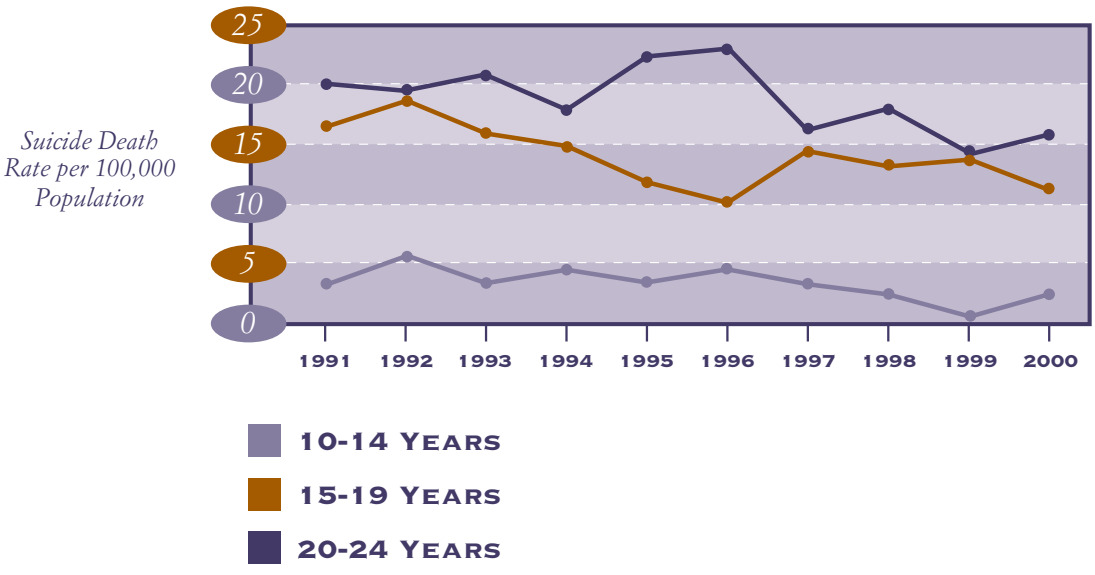

*Source: [1]Population-weighted, age-adjusted suicide death rates were calculated from mortality data provided by the Colorado Department of Public Health and Environment*
*[2]National Center for Vital Statistics*

## *Unemployment Rates: 10-Year Trends for Colorado and U.S.*




*Source: United States Department of Labor*

## *Suicide Death Rates: 10-Year Trends for Ages 10-14, 15-19 and 20-24*




*Source: Population-weighted, age-adjusted suicide death rates were calculated from mortality data provided by the Colorado Department of Public Health and Environment*

## Suicide Deaths/Attempts in Colorado

### SUICIDE DEATHS

- *Colorado's suicide death rate is the 12th highest in the nation.*
- *The suicide death rate in Colorado (14.4 per 100,000) is 36% higher than the national average.*
- *Suicide is the ninth-leading cause of death in Colorado.*
- *The largest number of suicide deaths occurs in metropolitan Denver counties. Adams, Arapahoe, Douglas and Jefferson counties each report between 53 to 94 deaths a year.*
- *Counties with the highest suicide death rates are scattered throughout the state, but are generally nonurban and located on Colorado's Western Slope.*
- *Three county-level indicators are strongly related to suicide death rates in Colorado: higher levels of unemployment, lower levels of Hispanics and higher levels of people living alone.*

### SUICIDE ATTEMPTS

- *National surveys estimate there are 18 to 25 suicide attempts for every suicide death.*
- *Women are much more likely to be suicide attempters, while men are more likely to die by suicide.*
- *Counties with the highest risk for suicide attempts tend to be in the southern part of Colorado, particularly the San Luis Valley. Additional areas of risk include Mesa, Delta and Dolores counties.*

## Counties at High Risk for Suicide Deaths

Colorado counties vary widely in terms of the number and rates of suicide deaths (see Tables 1 and 2 in the Appendix). Counties where the largest numbers of suicide deaths have been reported are urban metropolitan Denver, including Adams, Arapahoe, Douglas and Jefferson, which report between 53 and 94 suicide deaths every year. El Paso County (which includes the city of Colorado Springs) reports about 70 suicide deaths each year. Boulder, Larimer, Mesa and Pueblo counties each report between 21 and 43 suicide deaths a year.

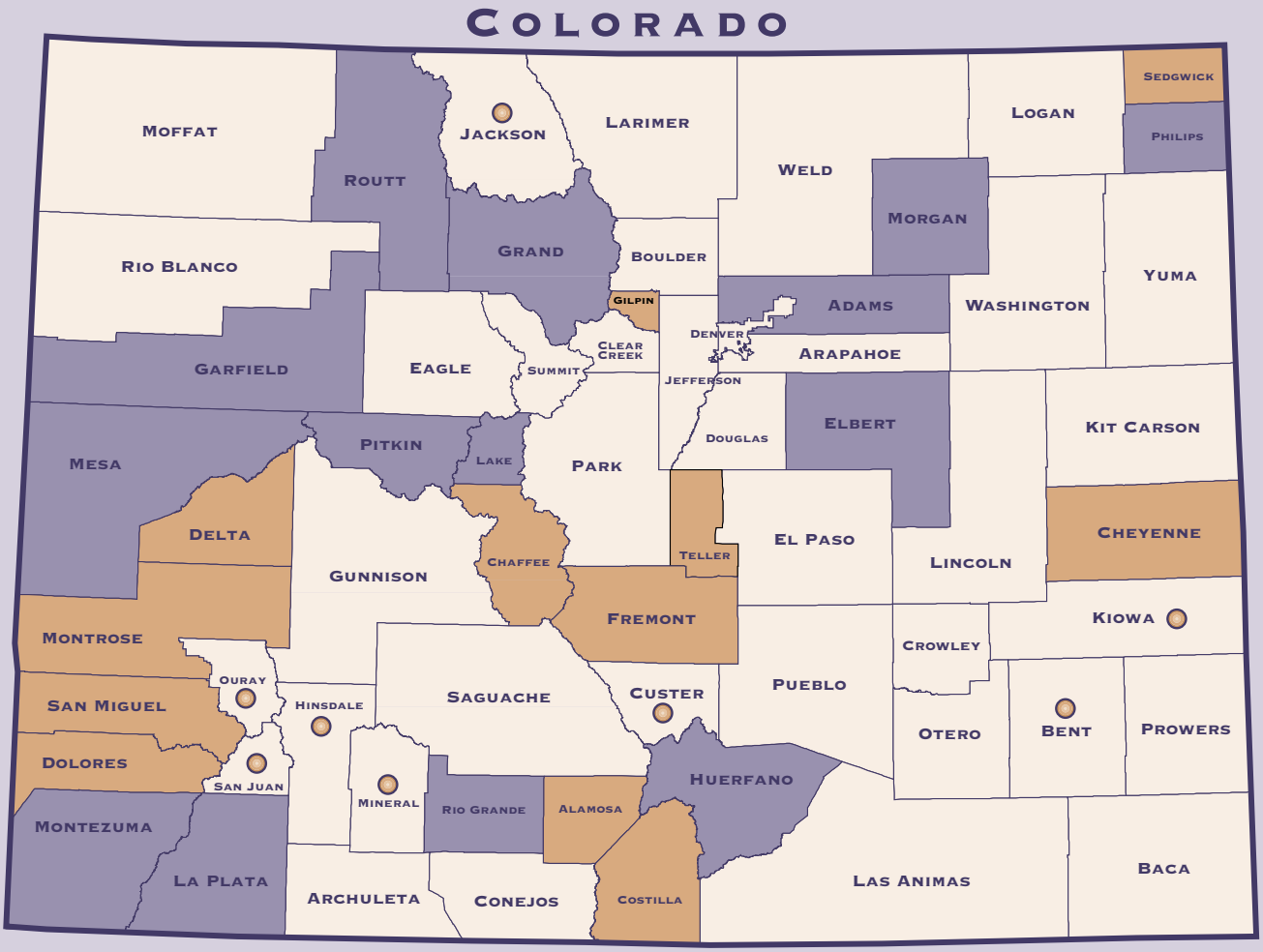
Examining suicide deaths in terms of rates permits a closer consideration of where the risk for suicide deaths is higher than might otherwise be expected.* Between 1991 and 2000, the median age-adjusted suicide death rate for all Colorado counties was 18.96 per 100,000 population. Calculating age-adjusted suicide death rates on a county-by-county basis reveals the following patterns:

- *The counties with the highest suicide death rates over the past 10 years are scattered throughout Colorado, but for the most part are nonurban and most likely to be located on Colorado's Western Slope.*
- *Counties with the lowest suicide death rates between 1991 and 2000 include suburban counties (Jefferson, Arapahoe and Douglas), as well as tourist-destination counties (Eagle, Summit and Park). These counties have experienced rapid population growth and economic prosperity over the past 10 years.*

County-specific suicide rates were not calculated for those counties in which fewer than five deaths occurred over the past 10 years. When the total number of deaths is so small, the resulting suicide rates cannot be considered reliable and have not been reported.

**Note: A crude suicide death rate can be calculated for each county by multiplying the number of deaths in a county by 100,000 and dividing this number by the county's population. This leads to the number of suicide deaths per 100,000 population. To reflect differences in suicide deaths for different age groups within each of the counties, separate suicide rates were calculated for 11 age categories by dividing the number of suicide deaths in each age category by the appropriate population for each age group for each of 10 years (1991-2000). The resulting age-specific suicide death rates were then standardized by multiplying each rate by the year 2000 adjustments assigned to each age category and then summed for each county for each year to obtain the age-adjusted suicide death rate for that county and year. A weighted mean was then calculated using county populations from 1991 to 2000 as the weights. The result is a population-weighted, age-adjusted suicide rate for each county for 1991-2000.*

# *Suicide Death Rate 1991-2000*




*Between 1991 and 2000, the suicide death rate in Colorado counties has ranged between 8.87 and 48.03 per 100,000, with a mean of 16.74 per 100,000.*

**1st Quartile -** *(17.71 - 22.90 per 100,000)*

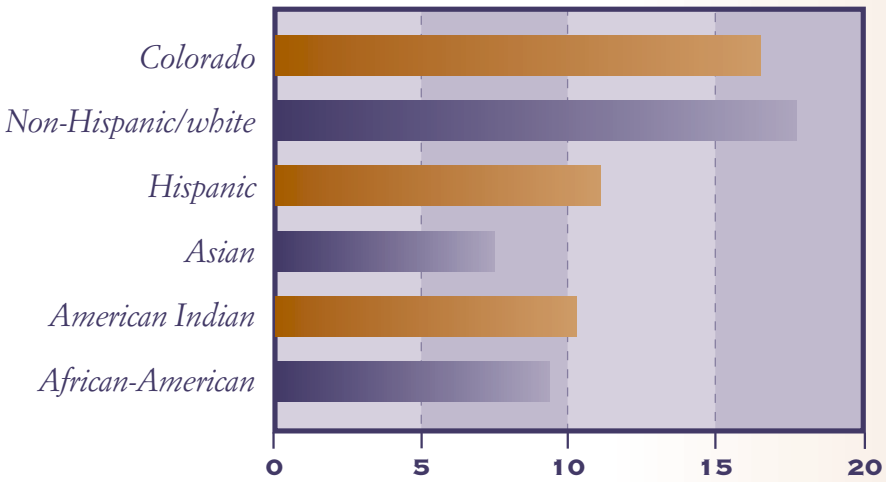
**2nd Quartile -** *(23.53 - 48.03 per 100,000)*

**Push-pins -** *Counties with less than five suicide deaths*

**Counties that had fewer than five suicide deaths in a 10-year period have not been included. All the counties in the 1st and 2nd quartile have a suicide death rate higher than the overall Colorado suicide death rate of 16.74 per 100,000.**

*Source: Population-weighted, age-adjusted suicide death rates were calculated from mortality data provided by the Colorado Department of Public Health and Environment*

## *Suicide Death Rate by Racial/Ethnic Group 1991-2000*




*Source: Population-weighted, age-adjusted suicide death rates were calculated from mortality data provided by the Colorado Department of Public Health and Environment*

### Risk Factors Associated With Suicide Deaths

To identify the risk factors associated with suicide deaths in Colorado, a county-by-county analysis examined the predictive influence of the county's age distribution, gender distribution and racial composition, the proportion of people married/unmarried, the percent of residents living alone and the county's unemployment rate. County-level estimates of the percent of the population with a major depression diagnosis and with other psychiatric disorders were also taken into account.* [51] Finally, as described in a later section, a county-specific risk score for suicide attempts was developed and included in the analysis. (See technical notes for further detail.)

*Suicide risk has been found to be lower among recent Hispanic immigrants between the ages of 15 to 34 when compared with their Hispanic counterparts born in the United States.*

The results of this analysis show that three indicators are strongly related to high suicide rates in individual counties: higher levels of unemployment, lower levels of Hispanics and higher levels of people living alone. The combined predictive power of these variables was extremely high as detailed in the technical notes at the end of the chapter. These predictors have been well documented as risk factors for suicide in studies in other parts of the country as well.

For individuals, *being unemployed* has been directly linked to a higher risk for suicide, particularly among men in county-level analyses in other parts of the country.[52] However, the relationship between unemployment and suicide has not always held true in larger geographic

**Note: A multiple regression analysis was conducted using the suicide death rates within Colorado's 63 counties as the dependent variable. Independent variables entered into the equation were identified through a search of the literature and included: mean-weighted unemployment rate, percent living alone, age, race, gender, marital status, presence of psychiatric disorders and a standardized suicide risk score. Variables determined to be co-linear and multivariate outliers were removed from the analysis.*

areas. Clearly, further analyses are needed to understand the links between unemployment and suicide more fully.

The finding that the *Hispanic culture appears to offer protection* against suicide is also well established in the literature.[53] In particular, suicide risk has been found to be lower among recent Hispanic immigrants between the ages of 15 to 34 when compared with their Hispanic counterparts born in the United States.[54] Having strong family and community bonds, cultural pride and a positive cultural identity appear to reduce the risk for negative mental health outcomes. Hence, areas with larger numbers of Hispanics, particularly those who are more recent immigrants, can be expected to have lower suicide death rates. We also know that the influence of culture can change over time as increasing numbers of Colorado Hispanics integrate into the mainstream.

The third factor found related to high suicide death rates in Colorado counties was the proportion of the population *living alone*. Areas with high proportions of people living alone have been found to exhibit higher rates of suicide deaths.[55] Some suggest that the variable "living alone" is actually an indicator of the degree to which certain individuals are socially isolated. The risks associated with social isolation are highlighted by a study showing that urban individuals who commit suicide typically do not participate in social groups and have limited numbers of friends.[56] Moreover, suicide rates are highest among those who are widowed, divorced and single as compared to those who are married.[57] While more research on individual risk factors is needed, the proportion of residents living alone may serve as an indirect measure of the degree of social isolation in the community. At the same time, community predictors do not automatically imply that all individuals who share these characteristics are at suicide risk.

## Trends in Suicide Attempts in Colorado

Because the majority of suicide attempts do not end in death, it is important to understand patterns in suicide attempts. Currently, there are three sources of information that provide a preliminary estimate of the numbers of suicide attempts: data on hospitalizations related to suicide attempts, information on people using the public mental health system who report they are suicidal and surveys of selected populations asking questions about suicide thinking, planning and intent.

Collectively, these sources provide a partial picture of the extent to which suicide is attempted in the state of Colorado. National surveys suggest that there are between 18 and 25 suicide attempts for every suicide death.[58] This would imply that with an average of 600 suicide deaths in Colorado per year, there may be as many as 9,600 suicide attempts annually. Consistent with national estimates that only half of suicide attempters get any help for the problem, only a fraction of Colorado suicide attempters can be found in the mental health care system. Colorado hospitals report an average of 2,838 hospitalizations for suicide attempts per year, while public mental health clinics treat around 6,700 patients (many of whom have also been hospitalized) who either have a serious suicide plan or who have made a suicide attempt.

*By some estimates, four out of five people who commit suicide have tried to warn others of their intent through verbal statements, written notes, demonstrating a preoccupation with death or other behavior indicating that they are planning to end their life.*

Evidence that someone is seriously planning to commit suicide represents a clear signal that help is needed. By some estimates, four out of five people who commit suicide have tried to warn others of their intent through verbal statements, written notes, demonstrating a preoccupation with death or other behavior indicating that they are planning to end their life.[59]

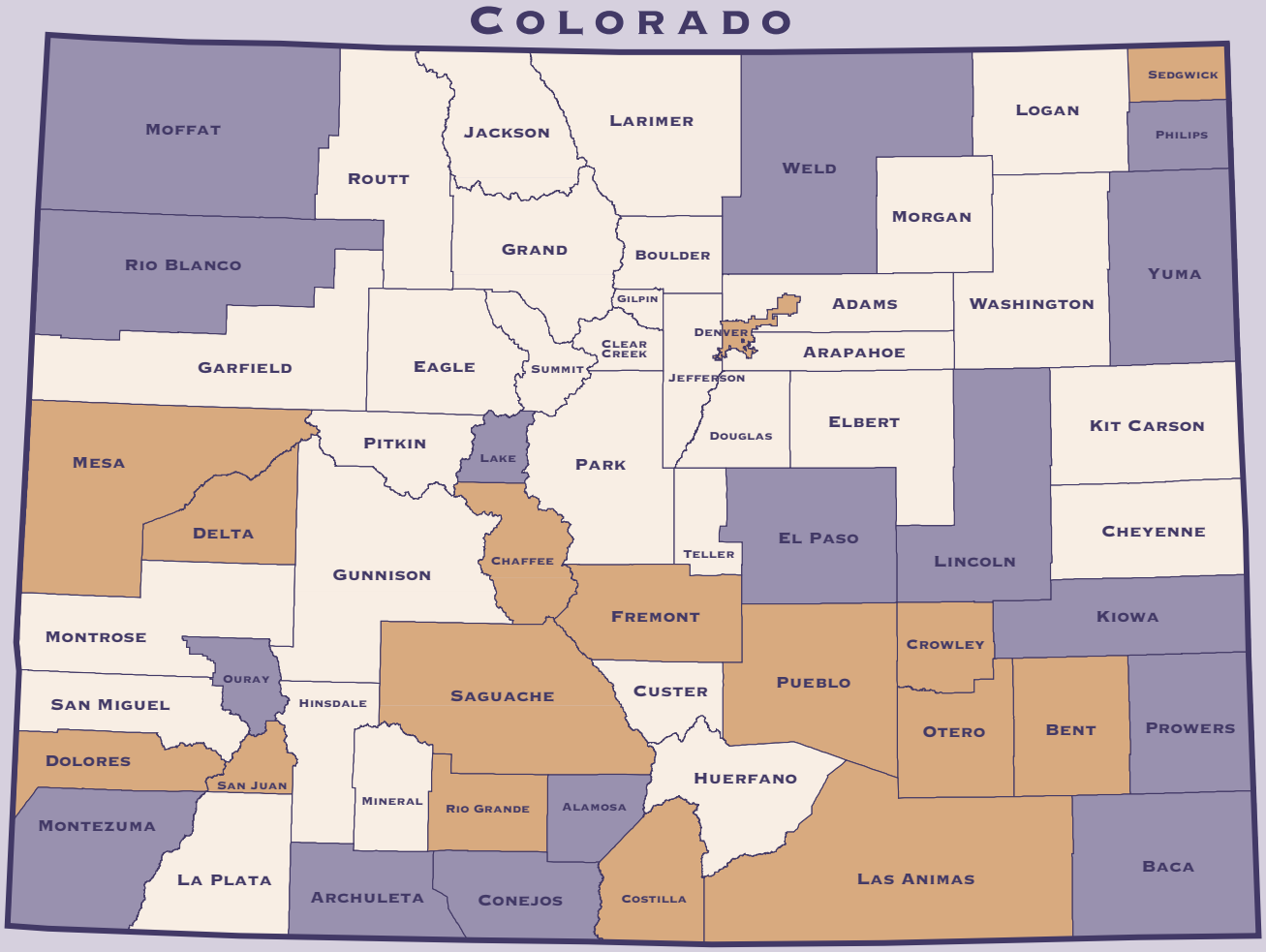
Profiles of those who make suicide attempts suggest that they are different from those who die by suicide. Suicide attempts are more likely to occur among women and younger people.[60] Despite the fact that the populations at risk for suicide attempts differ from those at risk for a suicide death, many of the predictors for these two behaviors are the same. In both cases, the presence of depression and other forms of mental illness are the strongest predictors of suicide behavior, followed by substance abuse disorders.

## Counties at High Risk for Suicide Attempts

Using data from the U.S. Census, the Colorado Department of Local Affairs and the Western Interstate Commission for Higher Education Mental Health Estimation Project, risk scores were developed for each Colorado county (see Table 3 in the Appendix). These risks were based on estimates derived from an analysis of the National Comorbidity Survey, as described in the next section. The distribution of these risk scores reveals the following patterns for suicide attempts:

- *The counties with the highest risk scores for suicide attempts tend to be in the southern part of the state, particularly in the San Luis Valley. Additional areas of risk are on the Western Slope in Mesa, Delta and Dolores counties.*
- *High suicide-attempt risk scores also were found for Denver County, with relatively lower scores for counties surrounding Denver, including Adams, Arapahoe, Jefferson and Douglas.*
- *The counties identified as having a high risk for suicide attempts differ in some cases from those reported as having the highest suicide death rates.*

# *Relative Risk for Suicide Attempts*




*The risk scores for suicide attempts in Colorado counties ranged from 4.81 to 10.69 on a scale of 100, with a mean of 8.29.*

**1st Quartile -** *(9.11 - 10.69 per 100,000)*

**2nd Quartile -** *(8.30 - 8.91 per 100,000)*

*Source: Analysis of data from the National Comorbidity Survey*

## Risk Factors Associated With Suicide Attempts

Since there is limited information available about the number of suicide attempts within Colorado and the distribution of these attempts among different population groups and geographic areas, risk scores for suicide attempts were created using data from randomly selected community residents participating in the National Comorbidity Survey.* (See technical notes for further detail.) To obtain an estimate of those individuals likely to make a serious suicide attempt, two questions from this survey were examined: who has made a plan for or attempted suicide, and who has made a plan or attempted suicide in the past 12 months? The value of using data from a population-based survey such as this is that it provides a perspective on all people at risk for suicide, not just those who have sought treatment from an organized service-provider system.

To develop predictors of suicide attempts, a number of factors were examined for possible associations with self-reported suicide plans or attempts including: age, gender, race, living alone, employment and the presence of depression or other psychiatric diagnosis. Of these, five were found to be significantly correlated with being at risk for a suicide attempt: being female, living alone, being unemployed, having a diagnosis of major depression diagnosis and any other psychiatric diagnosis in the past 12 months (see Table 4 in the Appendix). The predictor variables identified through this analysis support more general conclusions reached in the scientific literature.

Strong gender differences differentiate suicide attempts from suicide deaths. Whereas men are more likely to die by suicide, *women predominate among suicide attempters.* Various explanations have been suggested as to why this is so. Women seek help for mental health problems more often than men. Also, women who attempt suicide select less lethal means than men, with self-poisoning being a common method of choice. Whether these choices of suicide method reflect a less serious intent or less access to or familiarity with firearms is unclear. Finally, women may also have stronger social connections than men, which may serve as a protective factor.[61]

The *presence of mental illness* has been identified as a strong predictor of both suicide attempts and suicide completions. Psychological profiles constructed after suicide deaths have revealed that 90% of all suicides have shown some type of psychological disorder, particularly depression (mood disorders), substance abuse and personality disorders. People with more than one of these diagnoses are at particularly high risk, and the possibility of suicide is also greater depending on the severity of the disorder.[62]

Finally, the hazards of social isolation and *living alone* as a suicide risk have been described in a previous section.

**Note: The National Comorbidity Survey conducted in the early 1990s collected information on a nationally representative household sample of over 8,000 individuals (between ages 15 to 54) to study the prevalence and correlates of psychiatric disorders and the services utilized for these disorders.*

## Suicide-Related Services: Access and Barriers

Through the National Comorbidity Survey, a portrait can be developed of how those with suicidal intentions choose to seek professional services. Findings from this data suggest that only 50% of individuals with recent suicidal intention have sought any type of professional help for their emotional problems in the past year.

Among individuals with serious suicidal intent, several groups have a higher likelihood of seeking treatment, including people suffering from major depression and those with multiple physical illnesses. Among those most recently reporting suicide plans who are receiving care, services received can be briefly listed:

- *Twenty-seven percent experienced an inpatient hospital stay*
- *Twenty-one percent participated in a self-help group*
- *Fourteen percent used a telephone hotline for emotional problems*
- *Twelve percent visited a psychiatric outpatient clinic*
- *Ten percent were treated in an emergency room at least once.*

A high proportion of people who say they are suicidal are receiving medical care for a variety of other problems. Although only 10% report having seen a primary-care physician for their emotional problems in the past year, an additional 26% visited a primary-care physician for other reasons, resulting in over a third (or 36%) of people at risk for suicide being seen in a primary-care setting within the past year.

Most people with serious suicide intent are not seeking any type of service. Groups least likely to seek help are youth and those currently employed. The most common reasons suicidal individuals give for not seeking care are that they wanted to solve the problem on their own or they thought the problem would get better by itself. Difficulties people experience in attempting to receive appropriate treatment were also mentioned, while other barriers to seeking care include doubts about the effectiveness of the services and concerns about the stigma of seeking help for a mental health problem. More than one-quarter of those surveyed say they "would feel embarrassed if friends knew they were getting professional help for emotional problems." In addition, cost of treatment is a concern for a high proportion of respondents.

The reasons individuals with serious suicidal intent give for not seeking help suggest that through the formal care system, a concerted effort should be made to develop a new outreach strategy. This strategy will be most effective if it addresses the barriers listed in the following chart. (See Technical Notes for a fuller discussion of these results.)

## *Reasons for Not Seeking Professional Help Given by People Who Have Considered Suicide**

| Reason | % Agreeing |
|---|---|
| Wanted to solve the problem on my own | 81 |
| Thought the problem would get better by itself | 62 |
| Getting help too expensive | 62 |
| Unsure about where to go for help | 57 |
| Help probably would not do any good | 52 |
| Would take too much time or be inconvenient | 43 |
| Health insurance would not cover treatment | 38 |
| Went in the past, but it did not help | 33 |
| Concerned about what others might think | 29 |
| Problem went away by itself, so did not need help | 24 |
| Scared about being put into hospital against my will | 19 |
| Not satisfied with available services | 19 |
| Could not get an appointment | 10 |
| There was a language problem | 5 |

**Note: The National Comorbidity Survey conducted in the early 1990s collected information on a nationally representative household sample of over 8,000 individuals (between ages 15 to 54) to study the prevalence and correlates of psychiatric disorders and the services utilized for these disorders. The above data are presented for people who have made a serious suicide plan or attempt within the past year.*

## Technical Note # 1
*Statistical Analysis of Suicide Death Rates*

### PURPOSE
To identify the available demographic and psychological variables related to the suicide rate in Colorado, a multiple regression analysis was performed using county-level data.

### METHOD
#### Data:
Two data files were used to produce the county-level variables for the analysis. The first file consisted of 1991-2000 death certificate data obtained from the Colorado Department of Public Health and Environment that coded suicide as the manner of death (code = 6). The set consisted of 6,231 individual cases; variables included year of death, age, sex, race, Hispanic (yes/no), marital status, educational level (years of school), county of death, state, county and city of residence, state, county and city of injury, zip code of residence, occupation and industry. For the purpose of establishing county-level data, the county of residence was used as the basis of grouping.

The second data file was gathered from the Colorado Department of Local Affairs and the U.S. Census Bureau. For the entire state and each of the 63 counties, total population figures were gathered for years 1991-2000. In addition, the year 2000 population was broken down by sex, age categories, race, Hispanic (yes/no), marital status and living alone. Finally, the unemployment rates for 1991-2000 were included.

#### Dependent Variable:
The dependent variable in the analysis was the population-weighted, age-adjusted mean suicide rate from 1991-2000. To obtain this age-adjusted suicide rate (AASR), the death certificate data was aggregated separately for each year for each county by age category. The age categories were determined by those listed in the direct method of age adjustment used by the U.S. Department of Health and Human Services. These were <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84 and 85+ years of age. The age-specific suicide rate was then computed by dividing each set of frequencies by the county age-specific population figure for that year. Then, for each county in each year, the AASR was determined by multiplying each rate by the year 2000 weight assigned to that age category (Anderson & Rosenberg (1998). These age-specific rates were then summed up separately for each county for each year to obtain the AASR for that county and year.

Next, the AASRs were combined in a weighted mean using the county populations from 1991-2000 as the weights. The ultimate figure represented the population-weighted, age-adjusted suicide rate for each county from 1991-2000.

### RESULTS
#### Descriptive Statistics:
The overall Colorado mean AASR for 1991-2000 was 16.74 suicides/100,000 people. For the 63 Colorado counties, the median AASR was 18.96 suicides/100,000 people.

#### Multiple Regression:
The entire data set consisted of 63 cases corresponding to the Colorado counties. For purposes of confidentiality, the Colorado Department of Public Health does not report any suicide statistics for counties that have fewer than three suicides in a given year. In this spirit, counties that had fewer than five suicides over the 1991-2000 period were not used in this analysis even though the use of rates would have disguised the number of suicides. Rates based on so few cases are extremely unreliable and even the figures of many of the remaining counties should be viewed with caution. This procedure eliminated Custer, Hinsdale, Kiowa and Mineral counties.

The initial analysis used the following set of independent variables: mean weighted unemployment rate (1991-2000), percent 15-24 years of age, percent living alone, percent African-American, percent Hispanic, percent males, percent married, percent white, percent 65 years and over, percent under 21 years, percent with major depression diagnosis (1990 Holzer data - http://psy.utmb.edu/wiche/htm/co/ctot90/wdep1.htm), percent with other psychiatric diagnoses (1990 Holzer data -http://psy.utmb.edu/wiche/htm/co/ctot90/wany1.htm). Later analysis substituted the standardized risk score for suicide attempts (see the following Technical Notes).

The first set of regression runs identified percent white and percent married as highly correlated with the other identified variables (co-linear). Their variance inflation factors were extremely high and were removed from the analysis. A lenient search for multivariate outliers ($p<.0005$) revealed Yuma County to be extremely high in its Mahalanobis' distance value and it was removed from the analysis. The final data set consisted of 58 cases.

A standard regression run using the remaining identified variables showed that the weighted unemployment rate and percent Hispanic were significantly related to AASR ($p\leq0.05$). When percent depressed and percent other psychiatric diagnoses were replaced with the standardized suicide risk score, the same results were obtained, with the addition of percent living alone approaching significance ($p\leq0.07$).

The last set of regressions eliminated the psychological variables, using only the demographic measures. A standard regression showed the same three variables (weighted unemployment rate, percent Hispanic and percent living alone) all statistically related to AASR ($p\leq0.05$). The R2 value was .54 and the weighted unemployment rate uniquely contributed .21 to that R2 and was the strongest predictor variable.

A stepwise regression entered the weighted unemployment rate and percent Hispanic while percent living alone showed a strong trend toward significance ($p\leq0.06$), but did not pass the 0.05 criterion.

The final regression equation was determined by using the three important variables in a standard regression: AASR (estimated) = 1.989 (weighted average unemployment rate) - .262 (percent Hispanic) + .342 ( percent living alone) + 6.103. The R2 value was .501 (adjusted R2 = .473) with weighted average unemployment being the strongest predictor variable.

#### Confidence Interval:

The 95% confidence interval was calculated for the overall Colorado AASR (1991-2000) using the method detailed in Anderson & Rosenberg (1998). The normal approximation to the Poisson distribution and its gamma family members was used because the parameter x2/v was large enough to simplify calculations (Anderson & Rosenberg, 1998, p. 15).

95% confidence interval: 15.62 suicides/100,000 – 17.65 suicides/100,000

## REFERENCES

Anderson, R.N., & Rosenberg, H.M. (1998). Age standardization of death rates: Implementation of the year 2000 Standard. National Vital Statistics Reports: 47 (3). Hyattsville, Maryland: National Center for Health Statistics, 1998

## Technical Note # 2

*Statistical Analysis of County-Level Risk Scores for Suicide Attempts*

### PURPOSE

The purpose of this analysis was to use the National Comorbidity Survey to study the extent of suicide planning and attempts within the general population across the U.S., and to identify risk factors for this behavior in order to develop risk scores differentiating the risk for suicide attempts among Colorado counties.*

### METHODS

#### Data:

Data were derived from the National Comorbidity Survey, a nationally representative population survey of 8,098 people between the ages of 15 and 54 who were surveyed between 1990 and 1992.

The hour-long interviews conducted with each respondent permitted psychiatric assessments to be conducted. More detailed follow-up interviews were completed with those who were found to have ever had a psychiatric disorder. Within these interviews, several questions were asked about suicide behaviors (e.g., thinking about suicide, planning and suicide attempts).

#### Dependent Variable:

As a first step, a logistic regression model was created using "serious risk for suicide attempt" as the dependent variable. This variable was created using questions from the National Comorbidity Survey to determine who has ever in their lifetime made a plan for or attempted suicide.

#### Multiple Regression:

Based on factors known to put individuals at risk for suicide attempts, the following measures were incorporated as independent variables: age (15-24, 25-34 and 35-44), female gender, non-Hispanic/white, living alone, employment, past-year major depression diagnosis, past-year other psychiatric diagnosis and Western mountain residence (to control for potential variance related to Colorado residence).

### RESULTS

Of these variables, five were significantly correlated with being at risk for a suicide attempt at the $p<.05$ level: female gender, living alone, employment, past-year major depression diagnosis and past-year other psychiatric diagnosis.

For these significant variables, the parameter estimates were used as weights to develop a risk score for each Colorado county. These scores were then applied to county-specific data derived from the following sources:

- *U.S. Census: percent female, percent living alone, percent 16+ years of age*
- *Colorado Department of Local Affairs: percent unemployment*
- *Western Interstate Commission for Higher Education Mental Health Estimation Project: percent with major depression diagnosis and percent with other psychiatric diagnosis.**

**Note: Kessler, R.C., Borges, G & Walters, E.E. (1999). Prevalence of and risk factors for lifetime suicide attempts in the national comorbidity survey. Archives of General Psychiatry, 56, 617-626.*

## Technical Note # 3

*Statistical Analysis of Help-Seeking Patterns Among Suicidal Individuals*

### PURPOSE

The purpose of this analysis was to use the National Comorbidity Survey to understand formal help-seeking patterns among individuals self-reported as having made a serious suicide plan or attempt in the past year.

### METHODS

#### Data:

Data were derived from the National Comorbidity Survey, a nationally representative population survey of 8,098 people between the ages of 15 and 54 who were surveyed between 1990 and 1992.

The hour-long interviews conducted with each respondent permitted psychiatric assessments to be conducted. More detailed follow-up interviews were completed with those who were found to have ever had a psychiatric disorder. Within these interviews, several questions were asked about suicide behaviors (e.g., thinking about suicide, planning and suicide attempts).

#### Analytic Sample:

People who have made a plan for or attempted suicide within the past year.

#### Help-Seeking/Non-Help-Seeking:

Using data from the National Comorbidity Survey, help-seeking was defined as a respondent's having "sought help from any professional (i.e., health professionals, clergy, herbalists, healers, etc.) for emotional problems in the previous 12 months." Further questions detailed the types of professionals seen and the locations/services used in the past 12 months. Barriers to seeking help were identified through a close-ended question that listed potential reasons for not seeking professional help.

Comparisons between help- and non-help-seekers were derived for those who reported being at suicide risk within the past year. Bivariate analyses (chi-squares and t-tests) were used to compare the characteristics of help- to non-help-seekers.

**Note: Holtzer, C. et al. (1998). Western Interstate Commission for Higher Education mental health education project. [computer file]. Galveston, TX: University of Texas Medical Branch, Psychiatry and Behavioral Science.*

## *At-Risk for Suicide in the Past 12 Months*

| N (%) + | Help Seekers (N=43) | Non-Help Seekers (N=43) | Total Sample (N=86) |
|---|---|---|---|
| Age 15-24 | 18 (42%) | 23 (54%) | 41 (48%) |
| Nonstudent, 12 years education | 11 (26%) | 17 (40%) | 28 (33%) |
| Nonstudent, college education | 6 (14%) | 3 (7%) | 9 (11%) |
| Employed | 15 (35%) | 18 (42%) | 33 (38%) |
| Lives alone | 13 (30%)* | 5 (12%) | 18 (21%) |
| Major depression diagnosed | 30 (70%) | 26 (61%) | 56 (65%) |
| Number of physical comorbidities | 1.00 | .63 | .81 |
| Would not seek professional help | 9 (21%) * | 18 (42%) | 27 (31%) |

** Statistically significant at p≤.05 in bivariate analyses (chi-squares and t tests as appropriate)*
*+ Frequencies are reported for all variables except the "number of physical comorbities," which is a mean*

## Key Facts About Suicide Prevention Strategies

- *To address the complex problem of suicide, the U.S. Surgeon General has recommended that suicide prevention strategies contain a broad mix of interventions since comprehensive strategies are more likely to have an impact on the suicide rate than narrowly focused interventions.*
- *The selection of community health improvement programs should be based on evidence that positive changes will result. However, there is limited evidence on which strategies are the most effective for measurably reducing suicide behaviors at a program or community level.*
- *Evidence of effective suicide-prevention interventions has identified the effectiveness of specific assessment and screening tools rather than evaluating the impact of more comprehensive approaches. Community support for individuals at risk of committing suicide can be provided by:*
  - *Strengthening family connections*
  - *Enhancing medical and mental health care treatment options*
  - *Offering skill-building related to problem solving*
  - *Conflict resolution and nonviolent handling of disputes*
  - *Acknowledging the importance of cultural and religious beliefs that discourage suicide.*
- *Creating a system of care that is culturally competent requires providers to apply a strength-based model to all clients, value diversity, understand the dynamics of being the "other" and use cultural knowledge to tailor the assessment, diagnosis and treatment to the world views of individual clients. Culturally competent systems of care allow providers to build on the strengths of the cultures of different racial and ethnic minority groups.*

key facts

## Suicide Prevention Resources in Colorado

- **Suicide prevention resources are available in all Colorado counties, but stakeholders throughout the state have characterized these resources as minimally "adequate" to meet the needs of those at risk for suicide-related behaviors.**
- The majority (two-thirds) of existing suicide prevention programs provide more than one type of service. These tend to be located in community mental health centers.
- **School districts and individual schools offer a range of suicide prevention-related programs for students. The most common are anti-drug programs (90.8%), anti-violence programs (87.4%), general skill building (82.8%) and screening and referral services (81.6%).**
- A survey of stakeholders in counties throughout Colorado has revealed that the major barrier to the expansion of suicide prevention programs is a lack of funding.

# section 2

## Suicide-Prevention Services in Colorado

### Existing Resources

**A fundamental first step to improving the resources for suicide prevention in Colorado is to understand the types of programs that currently exist. To this end, a survey was designed to identify existing suicide resources in each of Colorado's counties. Stakeholders in several key sectors were surveyed: directors of regional mental health agencies, superintendents and key personnel from local school districts, directors of county public health departments and/or public health nurses, directors of local hospitals and community health centers, and directors of social service agencies and other community-based organizations.***

This survey was designed to create a preliminary inventory of suicide-specific resources in individual Colorado counties that addressed seven categories of services:

- *Community education*
- *Gatekeeper training***
- *Screening/referral*
- *Crisis treatment*
- *Ongoing mental health*
- *Peer support groups*
- *Other suicide programs.*

Respondents identified 239 suicide resources in Colorado counties. Since some of these programs serve more than one county and were counted more than once, the number of unique suicide-related programs serving Colorado residents was 166. Over half of these programs offer more than one service, with only 78 programs offering only one category of service. Of the services offered, the most common core services were crisis treatment, screening/referral and ongoing mental health treatment, services common to regionally organized mental health treatment centers.

In addition to these core services, 46 community education programs and 26 gatekeeper training programs were listed. It was interesting to note that gatekeeper training was a relatively unknown concept for many of the responding stakeholders.

An additional resource in Colorado is the Office of Suicide Prevention within the Colorado Department of Public Health and Environment, which serves as the coordinator of statewide suicide prevention efforts through grantmaking, training, public awareness and research.

**IN SECTION 2**



**Note: Of the 718 surveys sent out, the response rate for the community stakeholders was 49%. In addition, surveys were returned by 52% of the school districts. The survey results also include responses from 100% of the directors of the mental health regional offices, who were interviewed via telephone.*
***Note: Gatekeeper programs are educational programs designed to help community members recognize those contemplating suicide and refer them to appropriate caregivers.*

*A companion publication to this report, Suicide Prevention and Treatment Programs in Colorado, details suicide-related statistics and prevention resources for each Colorado county.* This report will be updated and maintained by the Office of Suicide Prevention. It is available from The Colorado Trust or can be obtained from the Trust's website, www.coloradotrust.org, or from the Office of Suicide Prevention's website, www.cdphe.state.co.us/pp/suicide.

## Services Available Through the Public Mental Health System

Colorado's public mental health system is a key component of community suicide-related resources. The state is divided into 17 public mental health service areas, each served by a community mental health center (CMHC). In rural areas of the state, there is often one primary CMHC office serving as a central resource and operating one or more satellite clinics located in other counties. Most individuals who seek care in the public mental system receive treatment from a CMHC office located in the county in which they live (see map).

In addition to CMHCs that serve individuals based on their residence, there are specialty clinics that provide services for specific populations who may have cultural or language barriers. Three such specialty statewide clinic programs exist for children, Hispanics and Asian/Pacific Islanders. Together, the CMHC and the specialty clinics serve roughly 84,000 individuals per year.

All public mental health clients are assessed for suicide risk either at the time they are admitted to care or, if they have long-term care, at least once a year. Of the public mental health clients served in fiscal year 2000:

- *13,600 clients expressed suicidal thoughts*
- *2,500 clients had made a serious suicide plan*
- *4,200 clients had made a suicide attempt.*

The CMHC and clinics provide both emergency and routine mental health treatment to people who are at risk for suicide. Services that assess an individual's mental status and provide crisis intervention are essential clinical services within a community-wide system of suicide-related services. Crisis intervention services are in the form of emergency outpatient mental health assessment/treatment and crisis stabilization that is provided on a 24-hour basis. Together, CMHC crisis teams, hospital emergency rooms, inpatient psychiatric beds and acute treatment residential units form part of a suicide treatment system.

In addition to crisis and routine clinical services, some CMHCs and clinics provide suicide-related programs for their communities. In a recent survey, public mental health managers reported 21 programs that provide one or more of the following types of services: screening and identification of at-risk individuals, general education and gatekeeper training. Eleven of the programs have clinical staff that screen and identify individuals at risk of suicide in community settings. Most of these outreach efforts are in school-based programs, but several are programs for the elderly. Nine of the CMHC programs provide general education to inform the public about the problem of suicide and warning signs of suicidal behavior. Seven programs train community people – other professionals and laypersons – to identify individuals at risk of committing suicide and to refer these individuals to appropriate professional help.

## Adequacy of Resources

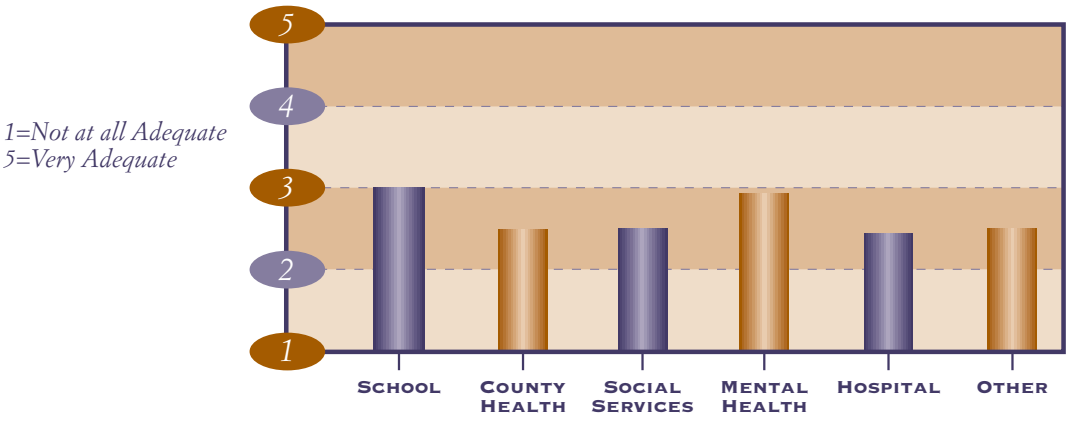
The survey described in the previous section focused on suicide programs known to the stakeholders interviewed. Further work needs to be done to confirm that these programs provide the services listed and to ensure that the existing list of services and programs is complete. Still, identifying existing programs is only a first step. A full assessment of available suicide-related resources would require examining the adequacy of these services to meet the need for suicide services in each county.

Within the survey, respondents were asked to assess the adequacy of suicide services in their communities on a scale of one to five, with one being "not adequate" and five being "very adequate." Most respondents indicated that there is room for improvement. Across all respondents, suicide services were generally characterized as only "somewhat adequate" (2.7 on a scale of 1 to 5).

In addition to the opinion survey, other information suggests that suicide-related resources in Colorado are insufficient to meet the needs of state residents, including:

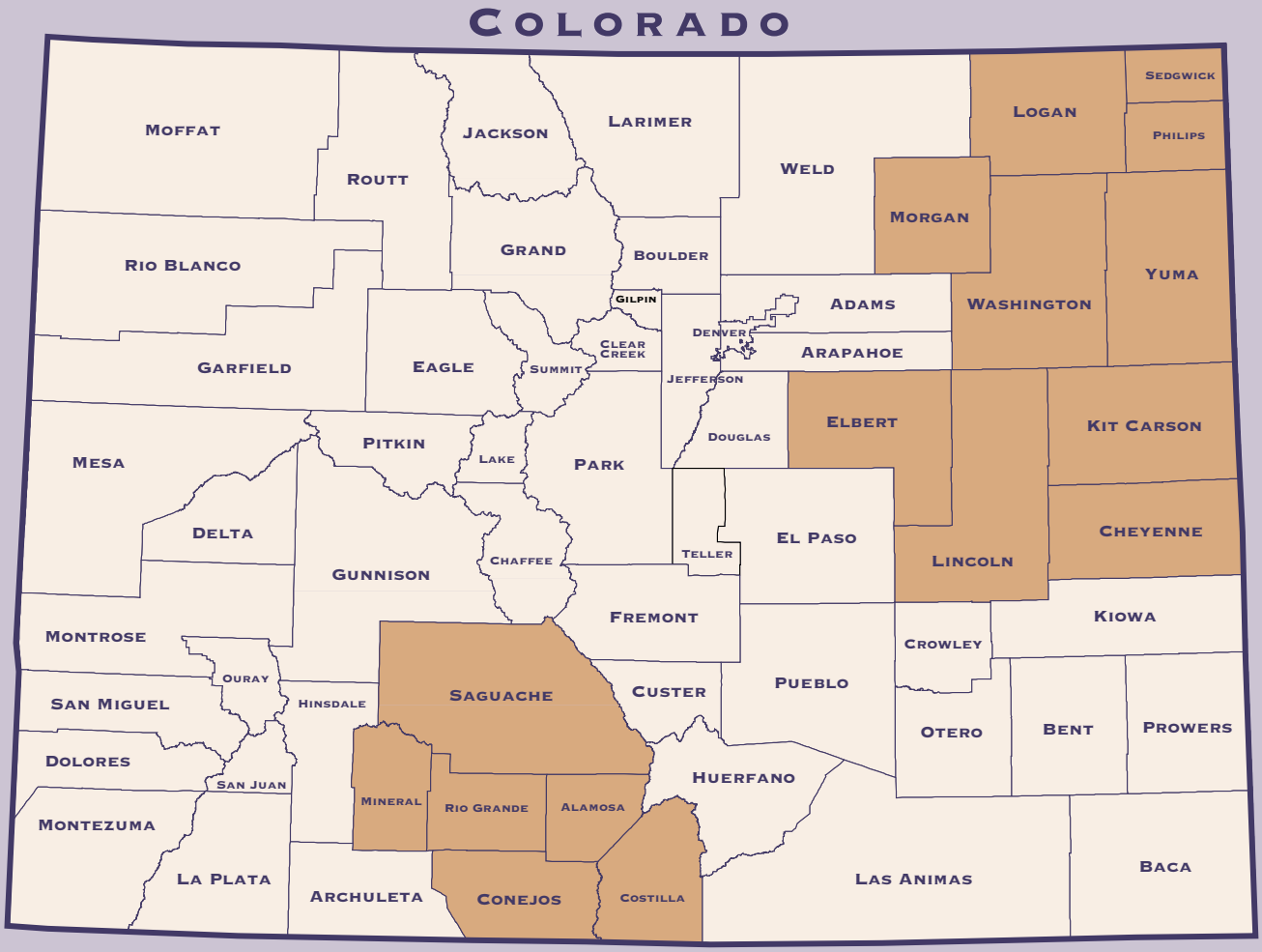
- *Sixteen Colorado counties are formally recognized by the federal government as "mental health manpower shortage areas," that is, areas where there is a shortage of mental health professionals, including psychiatrists. These counties are: Alamosa, Cheyenne, Conejos, Costilla, Elbert, Kit Carson, Lincoln, Logan, Mineral, Morgan, Phillips, Rio Grande, Saguache, Sedgwick, Yuma and Washington.*
- *Recent mental health needs assessment analyses prepared for Colorado's Map Mental Health Services indicate there continues to be substantial unmet needs for mental health services in Colorado for the seriously mentally ill population. Overall, 5.7% of Colorado's adult population is estimated to be in need of mental health services. Using the 2000 U.S. Census population figures, the estimated number of adults in Colorado in need of mental health services is 181,146. Roughly half of these individuals are estimated to be recipients of clinical services through some type of public mental health system, suggesting that there are many people in need of clinical services who do not receive such services in the public sector.*
- *Fourteen of 17 community mental health centers and clinics report there is currently a waiting list for routine clinical care. Typically, individuals who are placed on a waiting list have neither Medicaid nor private medical insurance. The fact that access to the public system can take some time indicates further that the amount of services available in Colorado is insufficient. Individuals who are judged by clinicians to be in immediate danger of committing suicide would receive crisis services, but follow-up or subsequent routine care for these people may not be available when the service system is at its capacity.*

## *Adequacy of the Suicide-Prevention Resources Available in Colorado Communities and School Districts*




*Source: Statewide Survey of Colorado Stakeholders, 2001*

# *Mental Health Shortage Areas*




*Sixteen Colorado counties are formally recognized by the federal government as "mental health man-power shortage areas," that is, areas where there is a shortage of mental health professionals, including psychiatrists.*

**MENTAL HEALTH SHORTAGE AREAS**

*Source: U.S. Department of Health and Human Services, Health and Resources Services Administration*

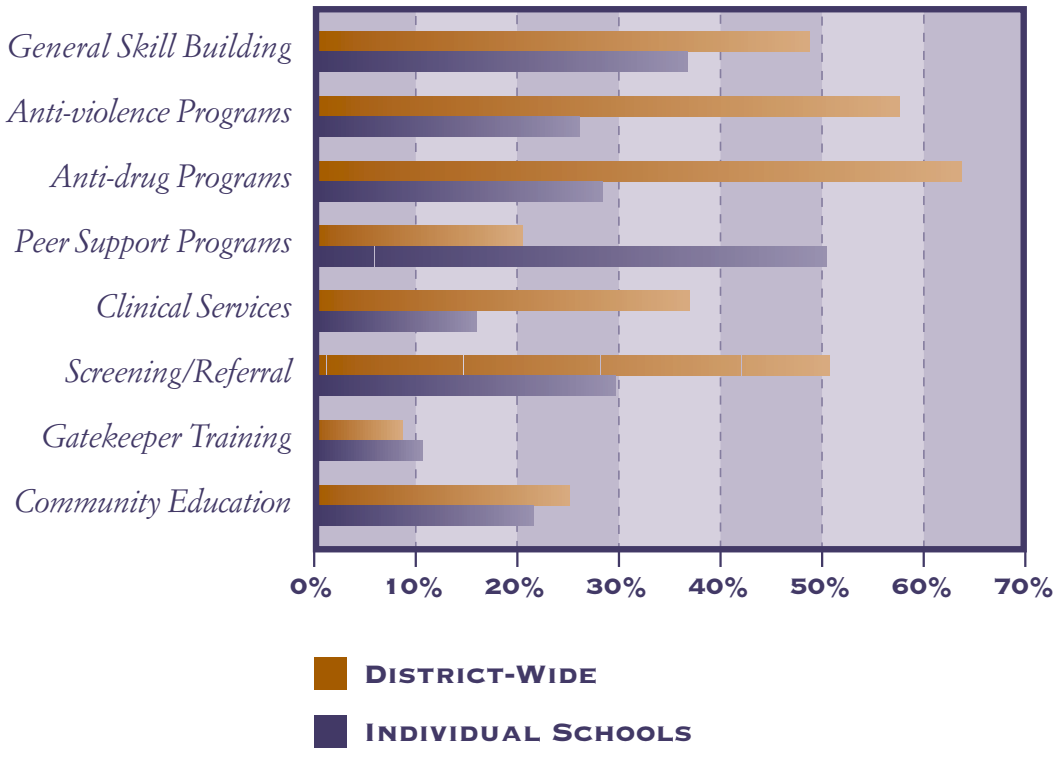
## Schools' Role in Suicide Prevention

Many suicide prevention programs are located in schools. Given the current pressures on school districts to address myriad youth problems, the survey conducted for this report sought to identify the types of roles that leaders in school districts saw for themselves with respect to suicide prevention, particularly in comparison with other societal issues and concerns.

Representatives from the 52% of Colorado school districts responding to the survey indicated that written crisis plans exist in only 67% of these districts, suggesting that a substantial number of school districts should be encouraged to take steps to develop appropriate crisis planning strategies.

School districts and individual schools in Colorado were found to offer a variety of suicide-related programs to their students. The most common of these are: anti-drug programs (63%), anti-violence programs (58%), screening and referral services (52%) and general skill building (49%). However, even these more typical school-based programs are only available in roughly two-thirds of the responding districts, leaving ample opportunity for further program development.

*The Availability of Prevention Programs in Colorado Schools and Districts*



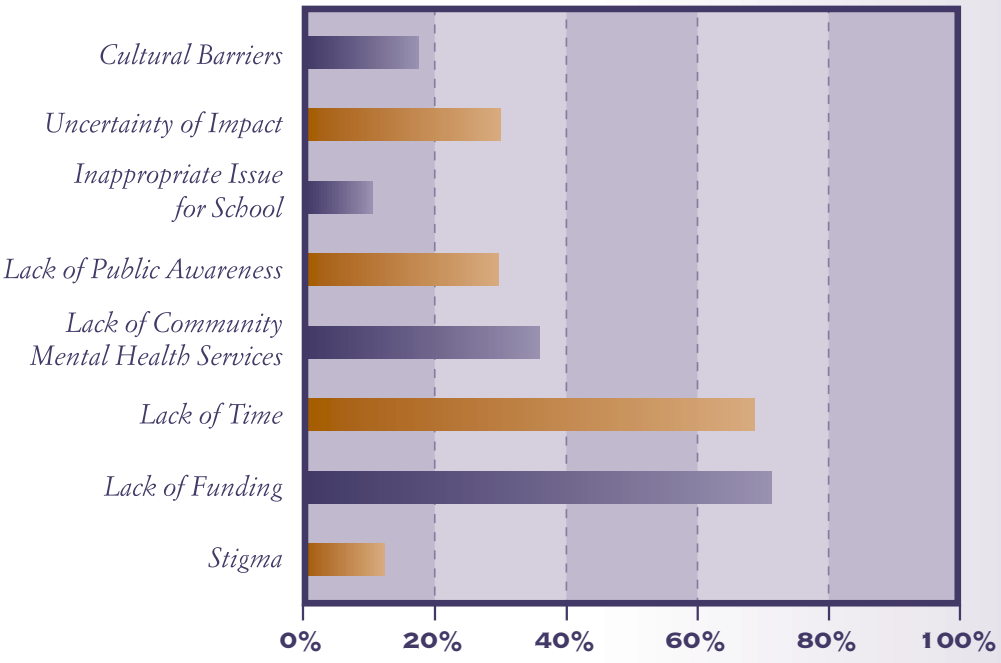

*Source: Statewide Survey of Colorado Stakeholders, 2001*

## Barriers to Expansion of Suicide-Related Services

The responses to the community survey conducted for this report indicate that most respondents believe suicide is a serious problem, particularly those working in mental health treatment centers, hospitals and social service settings. Furthermore, there is general recognition that the resources currently available to address suicide prevention are only "somewhat adequate."

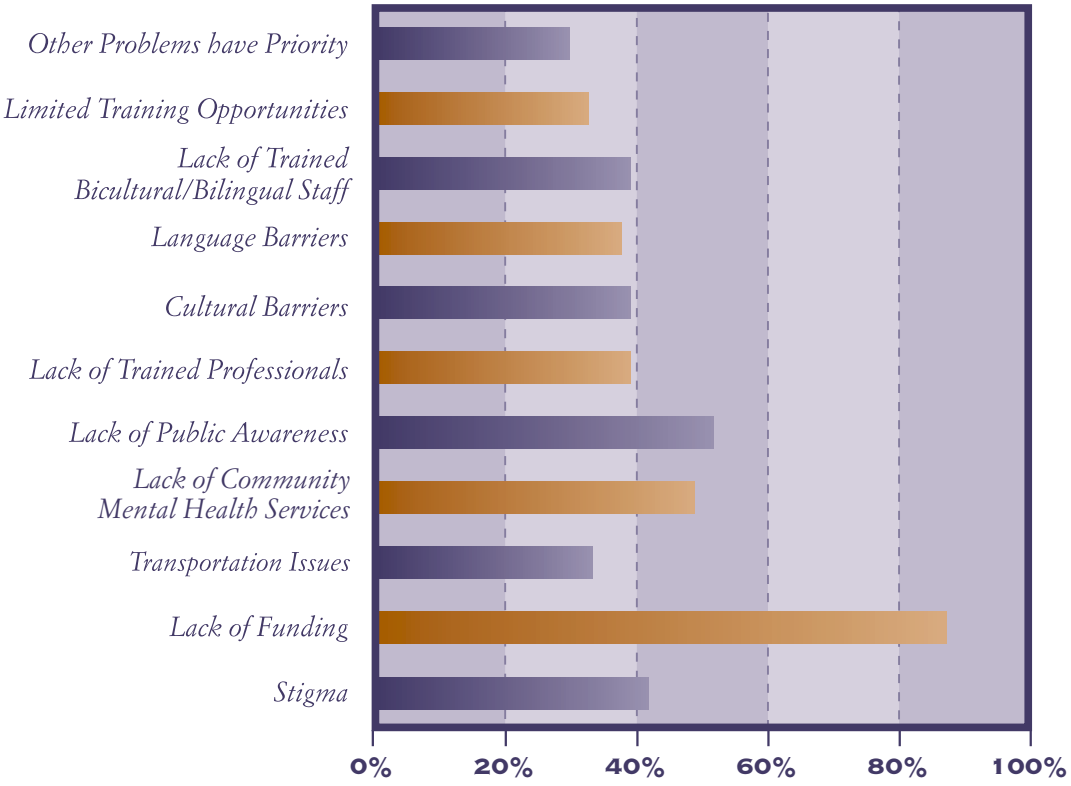
Community stakeholders also were asked to identify the barriers that limit their ability to expand suicide-related programs. The overwhelming problem identified by respondents was the lack of available funding to develop, implement and support suicide prevention programs. Eighty-five percent of the community stakeholders and 74% of school district representatives identified a lack of funding as the major barrier to suicide program expansion. Other major issues commonly recognized by the community respondents were a lack of community awareness (54%) and a lack of community mental health services (48%). For those in school districts, the second most-common barrier was a lack of time (68%), followed by a lack of community mental health services (38%).

*Barriers Colorado Schools Would Face in Expanding Suicide Resources*




*Source: Statewide Survey of Colorado Stakeholders, 2001*

## *Barriers a Community Would Face in Expanding Suicide Resources*




*Source: Statewide Survey of Colorado Stakeholders, 2001*

key facts

## Key Components of a Comprehensive Suicide-Prevention System

| Intervention Opportunity | Service-Oriented Programs | Service Settings |
|---|---|---|
| Provide outreach to individuals at risk of committing suicide | Screening, assessment and referral programs | Primary-care settings<br>Schools<br>Senior centers |
| | Peer support programs | Schools |
| Educate those in gatekeeper* positions to recognize individuals exhibiting suicidal behaviors | Gatekeeper training | Schools<br>Community<br>Health care setting |
| Respond effectively to those in a suicide crisis and those who have made a previous suicide attempt | Crisis treatment<br>Telephone crisis hotlines | Mental health settings |
| Provide professional services to suicide survivors | Mental health treatment | Mental health settings<br>Community support groups |
| Offer support to the families and loved ones of suicide victims | Suicide support programs | Medical care and mental health agencies<br>Community support groups |
| Educate the community about suicide problem and prevention strategies | Community education<br>Restricting access to lethal means | Community-wide |

**Note: Gatekeeper programs are educational programs designed to help community members recognize those contemplating suicide and refer them to appropriate caregivers.*

# section 3

## Components of a Comprehensive Suicide-Prevention System

**A comprehensive suicide-prevention system can be defined by identifying those who need different types of suicide-related services and those who can provide them. Using this approach, the following points of intervention are crucial to a comprehensive system:**

- *Provides outreach to at-risk individuals and people with whom they live, work and socialize*
- *Educates those in gatekeeper positions to recognize individuals exhibiting suicidal warning signs*
- *Responds effectively to people in a suicide crisis, including those who have made a previous suicide attempt*
- *Provides effective mental health services to suicide-attempt survivors and other at-risk individuals*
- *Offers support to the families and loved ones of suicide victims*
- *Educates the community about suicide and strategies to prevent it.*

The chart on the opposite page details how these different types of suicide interventions can be offered within different service settings. The list is not exhaustive, but includes examples of suicide programs known to exist throughout the country. The Centers for Disease Control and Prevention, for example, has identified eight suicide prevention strategies for youth, all of which have been incorporated into this chart.[63]

The National Strategy on Suicide Prevention recently announced by U.S. Surgeon General David Satcher has set an overall goal of promoting comprehensive and coordinated programs while recognizing that these programs may be developed differently by individual service professionals, communities and regional service-delivery programs.[64] The chart describes some of the community partners who can become involved in efforts to coordinate community-based suicide prevention efforts.

All existing service providers – mental health, primary care, substance abuse and social services – need to work together to create a continuum of services that responds quickly and efficiently to individuals and their risks for suicide.

### IN SECTION 3

## Research Evidence

Increasingly, community health programs are being asked to show evidence of their effectiveness; yet within the field of suicide prevention, few program evaluations have reached the highest standards of scientific rigor. One challenge to researchers interested in conducting science-based evaluation of these programs is that suicide is a relatively rare event. With roughly 600 cases of suicide occurring in Colorado per year, it is difficult to demonstrate statistically that decreases in suicide death rates have occurred within specific communities as a result of individual program efforts. Another shortcoming is that outcomes reported for individual suicide-prevention programs tend to focus on improvements in knowledge among those receiving suicide training rather than on actual reductions in suicide rates. In other words, we still do not know the most effective strategies for measurably reducing suicide.[65]

Suicide prevention programs that have shown the strongest evidence of being effective are summarized on the following page. This summary does not imply that other program models are not effective, only that evidence of their effectiveness has not been fully evaluated or has not been published in a peer-reviewed journal. Most of the suicide programs that have been evaluated are school-based, despite the fact that suicide pervades all age groups and increases with age.

*We still do not know the most effective strategies for measurably reducing suicide.*

Among the evidence-based programs identified, most of them:

- *Are school-based or focused on youth-oriented programs*
- *Focus on specific tools for preventing suicide such as assessment and screening methods rather than evaluating more comprehensive approaches*
- *Have not been fully evaluated in order to document the effectiveness of specific clinical approaches for working with patients identified as being at risk for suicide in either a mental health or primary-care setting.*

## *Evidence-Based* Results of Suicide Prevention Programs*

| AUTHOR, YEAR | PROGRAM TYPE/TYPE OF EVIDENCE REVIEWED | EVIDENCE OF RESULTS |
|---|---|---|
| *School-based Programs* | | |
| Ploeg, 1996[66]<br>Hazell and King, 1996[67]<br>Mazza, 1997[68] | Reviews of suicide prevention programs in middle and high schools | Knowledge increased among students in most programs; school connections with mental health agencies improved; some negative attitudes found among specific groups of students. |
| *Suicide Prevention Centers* | | |
| Lester, 1997[69] | Meta-analysis of 14 studies conducted between 1969 and 1996 | Modest prevention impacts were identified in half the studies of suicide centers, but in others, no effects were found and in one case suicide rates increased. |
| *Telephone Crisis Lines and Hotlines* | | |
| Hornblow, 1986[70]<br>Shaffer, et al., 1990[71] | Review of telephone counseling | Evaluating the impact of telephone hotlines is difficult for confidentiality reasons, but suicide rates do not appear to decrease due to the presence of such a service. While hotlines provide information, referrals and client support, people at highest risk of committing suicide may not use them. |
| *Training of Gatekeepers* | | |
| Meetha, 1998[72] | Survey of state interventions | Systematic evaluations of these programs have yet to be reported with the overall results of this approach still inconclusive. |
| *Follow-up for Suicide Survivors* | | |
| MacIntosh, 1993[73]<br><br>Leenaars and Wenckstern, 1998[74] | Review of 14 suicide survivor programs | Researc remains incomplete, although some studies suggest these programs are effective in decreasing depression and "copy-cat" suicide among adolescents. |
| *Programs in Prisons/Jails* | | |
| Hayes, 1999[75] | Multi-component suicide plans for adult and child detention facilities have been developed. | Impacts of these programs have yet to be evaluated. |

**Note: A more in-depth discussion of the evidence for individual programs is available through the original source document for this material: Colorado Department of Public Health & Environment. (1998). What do we know about the effectiveness of suicide prevention and intervention programs in the prevention of suicide? Denver, CO: Author.*

## Targeted Services for Populations at Risk

The programs reviewed in the previous section were organized around specific settings or places where suicide programs are offered. Another category of programs that have been evaluated includes those that address the special needs of population groups who are at risk. A summary of evaluated programs is provided on the next page. This review, while describing promising program approaches, is not comprehensive in addressing the needs of all at-risk groups or all possible intervention strategies, but merely highlights some of the best-practice information currently available.

*There are strong associations between suicide and the presence of depression, other psychiatric disorders and substance abuse.*

One issue that has arisen for programs that are population-based is the recognition that many of those at risk for suicide exhibit other types of at-risk behavior as well. As detailed in the previous section, there are strong associations between suicide and the presence of depression, other psychiatric disorders and substance abuse. Since suicide is often a symptom of other related problem behaviors, the assessment of suicidal thinking, planning and behavior, as reported in these studies, often occurs as part of a broader constellation of at-risk factors.

## *Evidence-Based* Results of Suicide Prevention Programs for Populations at Risk*

| AUTHOR, YEAR | PROGRAM TYPE/TYPE OF EVIDENCE REVIEWED | EVIDENCE OF RESULTS |
|---|---|---|
| *Preventing Youth Depression/Violence* | | |
| Thompson & Eggert, 1999[76]<br>Shaffer & Craft, 1999[77] | Two school screening programs identify youth at risk | At-risk youth can be identified, but the ability of programs to reduce suicide risk has yet to be documented. |
| *Suicide Prevention Efforts Among Subgroups of People Diagnosed as Mentally Ill* | | |
| Koerner & Linehan, 2000[78] | The effect of dialectic behavior among those with borderline personality disorder | This psychosocial treatment therapy has been shown to reduce self-injurious behavior. |
| Meltzer, 1999[79] | The effect of clozapine on reducing suicide among those with schizophrenia | Initial results suggest this medication reduces suicidal behavior among schizophrenics, with a prevention trial under way. |
| Jamison, 2000[80] | The effect of lithium on reducing suicide among those with mood disorders | Those with bipolar disorders who remain on lithium maintenance treatment have a lower risk of suicide. A large, multi-site trial is tracking the effectiveness of medication, psychosocial and environmental interventions in reducing suicide in these patients. |
| *Improving Follow-up Treatment with Those Who Have Made a Suicide Attempt* | | |
| Allard, Marshall & Plante, 1992[81]<br>Rudd, et al., 1996[82] | Quasi-experimental evaluation of outpatient programs | Compliance with follow-up care recommendations increased, although a reduction in suicides could not be demonstrated in all studies. |
| *Primary-Care Interventions for Depressed Seniors* | | |
| Bruce & Pearson, 1999[83] | The effect of care managers in helping physicians recognize and treat depression in seniors | Results have yet to be reported. |
| *Programs for Special Populations at Risk* | | |
| Middlebrook, 2001[84] | Programs for Native Americans developed through the Indian Health Service | The effectiveness of these programs has not been reported. |

**Note: A more in-depth discussion of the evidence for individual programs is available through the original source document for this material: U.S. Department of Health & Human Services (2001). National strategy for suicide prevention: Goals & objectives for action. Rockville, MD: U.S. Department of Health & Human Services.*

## Community-Based Initiatives

Suicide prevention strategies also can focus at the community level. The recent report of the U.S. Surgeon General recommends that suicide prevention be addressed through a broad mix of interventions, in part because comprehensive strategies are more likely to have an impact on the suicide rate than narrowly focused interventions. Reductions in suicide behaviors are more likely to occur when prevention strategies incorporate a broad range of services and providers including both traditional service providers (mental health, primary care, public health, education, social services and law enforcement) as well as those in the faith community, civic groups and business.[85]

Interventions designed to produce changes in suicide at the broadest community level can address factors that increase the risk of suicide as well as those shown to offer protections against suicide. Ensuring that effective clinical care is available for mental, physical and substance use disorders is a basic first step. More broadly, community support for at-risk individuals can be provided by increasing:

- *Strong connections to family*
- *Support through ongoing medical and mental health care relationships*
- *Skills in problem solving, conflict resolution and nonviolent handling of disputes*
- *Cultural and religious beliefs that discourage suicide and support self-preservation.*[86]

How can these strategies be implemented as a community-wide initiative? The U.S. Air Force provides one example. The multifaceted approach developed by the Air Force to reduce suicides has included widespread and repeated suicide awareness and prevention training, gatekeeper training, screening questionnaires, changes in mental health confidentiality policies and messages from the Air Force Chief of Staff designed to change community attitudes about seeking and providing help. Preliminary data suggest that suicides have been reduced among Air Force personnel, although it is unclear which components of the strategy singly or in combination have been responsible for this decline.[87]

## Culturally Competent Approaches

A person's cultural background defines the way in which he or she perceives his or her health, responds to health and mental health conditions, reacts to life stresses and experiences social support. Given the importance of culture in defining life experiences, health care providers are acknowledging the need to provide services in a manner that is culturally appropriate, relevant and meaningful. The American Psychological Association has recommended that providers acquire knowledge and skills to allow them to recognize the cultural diversity of their clients, as well as the interaction of the cultural, political and economic experiences of different racial and ethnic groups.[88]

In the context of mental health and suicide prevention, the delivery of culturally competent services requires health professionals to:

- *Apply a strength-based model to all clients*
- *Value diversity in its myriad forms*
- *Understand the dynamics of being the "other"*
- *Use cultural knowledge to tailor the assessment, diagnosis and treatment to the worldviews of individual clients.*[89]

Cultural competence applies not only to the delivery of services to individuals, but also to the organization of these services within a community. Guiding principles developed by the Center for Mental Health Services underscore the importance of creating systems of care that are consumer-driven and community-based.[90] When services are consumer-based, they adapt self-help concepts from the client's cultural heritage, acknowledging, for example, the significant role of extended family members in the lives of many people of color. Community-based systems of care are those in which patients and their families can collaborate in determining their course of treatment, incorporate traditional healing practices and, more generally, recognize resources that are familiar and valued by minority cultures – factors that can improve the effectiveness of services.[91]

Creating systems of care that are culturally competent also allows providers to build on the strengths of minority cultures. For some cultures, being foreign-born can provide a certain level of protection against stress, depression and mental illness.[92] The Hispanic culture has been found to provide a protective buffer against depression and substance abuse, mental health concerns that can influence individuals differently depending on the extent to which traditional cultural beliefs are maintained and supported.[93] African-Americans have been reported to draw support from resilient family structures and spiritual practices.[94] Family cohesion in the Asian-American community is also viewed as a strength.

In sum, the research strongly suggests that increasing the cultural competence of services delivered not only improves the delivery of these services to individuals, but also offers opportunities for services to become more efficient and effective. Moreover, as service delivery is perceived by diverse populations as being more relevant to their specific experiences, the use of these services can also be expected to increase.

key facts

## Key Suicide-Prevention Strategies

### Encourage At-Risk Individuals to Seek Care

- *Encourage public awareness of suicide*
- *Development community-based prevention programs*
- *Improve primary-care providers' ability to detect, treat and refer suicidal patients*
- *Create suicide prevention programs in schools*
- *Expand gatekeeper training*
- *Provide services to people experiencing traumatic events*

### Improve Care for At-Risk Individuals

- *Refine and distribute screening assessment tools*
- *Expand professional training on suicide prevention*
- *Improve the ability of mental health providers to address suicide*
- *Provide support for suicide survivors*
- *Encourage culturally competent approaches*

### Promote Policies to Help Reduce the Risk of Suicide

- *Improve financing for mental health services*
- *Reduce access to firearms*

# section 4

## Combating The Problem: Three Key Strategies

**The need for broad-reaching and comprehensive strategies to address the problem of suicide and suicide behaviors is clear. No single approach is likely to be sufficient.**

**A concerted commitment from all segments of the community in towns, counties and regions, and at the state level will be required. The information in this section is designed to assist these groups in selecting appropriate strategies.**

The needs assessment conducted for this study points out the need for action in three areas:

- *Encourage at-risk individuals to seek care*
- *Improve care for at-risk individuals*
- *Promote policies to help reduce the risk of suicide.*

## Strategy #1: Encourage At-Risk Individuals to Seek Care

### Increase Public Awareness of Suicide

Suicide is the ninth-leading cause of death in Colorado, yet public awareness of suicide as a problem remains limited.[98] Suicidal behavior is strongly linked with mental illnesses, substance abuse and unemployment, with 60% to 90% of all suicidal behaviors being connected with some form of mental illness and/or substance use disorder.

Stigma is associated with seeking help for these disorders and prevents many people from seeking the types of treatment that can help to prevent suicide. The power of this stigma is evident – as many as two-thirds of those with suicide plans do not seek any professional help for their mental health or related suicide problems.[99]

An unwillingness to seek help is particularly common among certain ethnic groups, in rural areas and among youth and the elderly.[100] [101] Individuals also might not seek treatment because they may not perceive that they need it or are unaware of available, affordable care options.

### In Section 4

## Principles of Suicide Prevention

- *Prevention strategies should target the population at risk for committing suicide.*
- *Prevention strategies to reduce suicide should be aimed at influencing institutions such as schools, welfare systems and community service agencies rather than suicidal individuals.*[95]
- *Reducing suicide in a community will require a comprehensive and coordinated effort. Prevention strategies that try to reduce suicide by improving services in a single service area are not likely to be effective.*[96]
- *Prevention strategies should be culturally sensitive and responsive to the needs of racial and ethnic minorities.*[97]
- *Prevention strategies should improve services identified as priorities in local communities by a diverse array of informed stakeholders.*
- *Increased attention and prevention strategies need to focus on at-risk populations in order to enable them to receive the services they require.*
- *Prevention strategies should include primary-care providers, who can help improve screening, diagnosis and treatment for those at risk for suicide.*
- *Prevention strategies should include strengthening the mental health system to respond more effectively to those at risk for suicide.*

Limited public understanding of the treatment available for mental illness, substance abuse and suicide also contributes to inadequate insurance coverage for these service categories. Until a recent legislative change in Colorado, insurers refused to pay for suicide-related expenses because they were self-inflicted.

The U.S. Surgeon General has recommended that one of the primary strategies for preventing suicide should be increasing the public's awareness of the problem and the ways it can be prevented.[102] Public education and awareness campaigns serve to:

- *Encourage those in need of services to seek professional help*
- *Increase the ability of professional, community and lay groups to recognize common signs and symptoms associated with suicide behavior*
- *Promote general public awareness of suicide as a societal problem and options for addressing it.*

One deterrent to the development of aggressive public information campaigns is the concern that publicizing suicide deaths may cause copy-cat attempts. The Centers for Disease Control and Prevention (CDC) recommends that services targeted to people at risk of suicide be provided in situations where clusters of suicides have occurred. The CDC is also developing recommendations for media reports on suicide to minimize the possibility of contagion. Recent research suggests that people who read about or saw media reports about suicide were not any more likely to commit suicide, yet concerns about this sensitive topic remain.[103]

## DEVELOP COMMUNITY-BASED PREVENTION PROGRAMS

Suicidal behavior has been connected to stressful life events as well as to individuals' mental and physical health. Events such as separation from a partner, loss of a job and physical illness can increase the risk of suicide in vulnerable individuals.[104] As described in previous sections, the community in which a person lives can provide supports and protections that can improve an individual's ability to deal with difficult life circumstances.[105]

Community-based suicide prevention programs should be organized to incorporate multiple prevention strategies, including those that are:

- *Universal – focusing on everyone in a geographic area*
- *Selective – targeting people at increased risk, or*
- *Indicated – providing services to people at greatest risk or individuals who have previously attempted suicide.*

An effective community-based strategy should have programs at each of these levels of intervention and encourage collaboration among multiple community organizations, including health, mental health, public health, justice, law enforcement, education and social service agencies. Other potential partners include agencies that serve the elderly, employers, correctional institutions and other community-based organizations.

Successful suicide-prevention efforts are comprehensive and encompass a wide array of different strategies: public education, professional training, clinical interventions and broader community-based prevention efforts. Treatment should be coordinated among primary care, mental health and substance abuse service programs. Finally, trained gatekeepers can play a role in ensuring that those most in need of services are likely to receive them.

Most important, community-based approaches to suicide prevention need to be tailored to local community values, population characteristics and availability of resouces.

| MATRIX OF INTERVENTIONS FOR SUICIDE PREVENTION EXAMPLES | | | |
|---|---|---|---|
| | **BIOPSYCHOSOCIAL** | **ENVIRONMENTAL** | **SOCIOCULTURAL** |
| **UNIVERSAL**<br>The intervention is designed to affect everyone in a defined population | Incorporate depression screening into all primary care practices | Promote safe storage of firearms and ammunition | Teach conflict resolution skills to elementary school children.<br>Provide programs that improve early parent-child relationships |
| **SELECTIVE**<br>The intervention is designed especially for certain sub-groups at particular risk for suicide | Improve screening and treatment for depression in the elderly in primary care practices | Reduce access to the means for self-harm in jails and prisons | Develop programs to reduce feelings of despair and help increase protective factors for high-risk populations, such as Native American youth |
| **INDICATED**<br>The intervention is designed for specific individuals who, on examination, have a risk factor or condition that puts them at very high risk | Implement cognitive-behavioral therapy immediately after patients have been evaluated in an emergency department following a suicide attempt | Teach caregivers to remove firearms and unused/out-of-date medications from the home before hospitalized suicidal patients are discharged | Develop and promote honorable ways for law enforcement officers to receive treatment for mental and substance use disorders and return to full duty without prejudice |

*Source: U.S. Department of Health & Human Services, 2001*

## IMPROVE PRIMARY-CARE PROVIDERS' ABILITY TO DETECT, TREAT AND REFER SUICIDAL PATIENTS

People who are suicidal often visit their physicians for physical ailments. With this in mind, it is crucial that primary-care physicians become more proactive in detecting, treating and referring patients with suicidal tendencies.[106] [107] Chronic medical illnesses other than depression increase the likelihood of depression two to three times.[108] In addition, two-thirds of primary-care patients who have been diagnosed as suffering from a psychiatric illness have been found to also have a significant physical illness.[109]

Primary-care physicians typically must cover a large number of competing issues during each patient's visit.[110] In most cases, both patients and physicians choose to deal with medical rather than mental health problems.[111] Despite the frequency with which mental disorders are diagnosed in primary-care practice settings, one-third to one-half of patients resist being referred to a mental health professional. Instead, patients prefer to remain untreated or to receive treatment from their primary-care physician.[112] A number of factors related to patients' resistance to mental health referrals have been identified,[113] [114] but patients most resistant to mental health referral tend to be those who are older, are less educated, have lower incomes or are people of color.[115]

Many patients who are suicidal have contact with primary-care clinicians before attempting suicide. In the month before their deaths, a majority of people who committed suicide were found to have visited a primary-care physician.[116] Hence, primary-care physicians should be encouraged to recognize and respond to suicidal thinking and planning.[117] One large recent study found that patients experiencing major depression reported that their physician asked about suicidal thinking during 30% of visits. The physician was more likely to question the patient about suicide when the physician had already determined that the patient had major depression. Yet even in these instances, only 51% of patients reported being asked about their suicidal thoughts.[118]

Because the number of patients who commit suicide is generally small in a primary-care practice,[119] physicians can benefit from tools that make the detection of suicidal thoughts and other social and mental health problems feasible in a busy primary-care setting. National efforts are underway to encourage greater links between primary and mental health care service delivery settings,[120] with a particular emphasis on improving diagnosis and treatment of mental conditions among primary-care providers.[121] [122] Options for improving primary-care management of depression,[123] integrating mental health providers into primary-care settings[124] and linking primary-care providers are being developed and tested.[125]

More specific strategies focusing on suicide detection, management and referral are:

- *Develop or improve tools and strategies that primary-care physicians can use in their office to enhance the detection of suicide and other social and mental health problems. Several detection strategies can simultaneously address a variety of issues that are poorly detected in primary care (suicide, domestic abuse, risky sexual behavior, drug and alcohol abuse, etc.) and link these diagnoses with appropriate referral options in the community.*
- *Provide continuing medical education for primary-care physicians in detecting and treating mental health problems. Most training programs have helped improve physician knowledge, but have not increased the frequency with which patients are detected. Research has shown that an innovative educational program developed by the John D. and Catherine T. MacArthur Foundation's Initiative on Depression in Primary Care significantly improves the likelihood that depression will be detected.*[126]

- *Improve communication and links between primary-care clinicians and community-based mental health specialists. Because the links between the primary-care and mental health sectors may differ widely among communities (depending on the availability and distribution of mental health professionals, health plan characteristics and other features of the health care system), specific needs assessments at the local level that seek input from primary-care physicians and mental health specialists may be useful.*

## CREATE SUICIDE-PREVENTION PROGRAMS IN SCHOOLS

Because teens spend many of their waking hours at school, classrooms are a logical place to educate students about health issues such as suicide prevention. Increasing students' awareness of peers who may be at risk for suicide also increases the chances that youth who are in need will be recognized and that appropriate efforts will be made to reach out to help them. However, suicide-prevention programs are not common in schools and school districts in the United States.[127] [128]

In part, this can be attributed to the limited evidence regarding effective methods of suicide prevention in school settings. Without more extensive evaluation, the benefit of school programs remains unproven. Also, most schools struggle with limited teaching time and thus are reluctant to add programs to an already time-challenged curriculum.[129]

Another deterrent is the limited availability of special training. Many teachers and school counselors do not feel confident about their ability to identify students at risk for suicide. One recent study found that only 9% of health teachers felt they could correctly identify youth in need of suicide intervention.[130]

Some school programs have had positive effects on the prevention of suicide. One comprehensive, countywide, school-based suicide-prevention program study showed that an overwhelming majority of those surveyed retained this training 10 years later.[131] A Dallas, Texas, program showed increases in knowledge and confidence among counselors who were given tools to identify suicide risk factors and create prevention and crisis plans (90%).[132]

Because teens turn to each other – not adults – for help, schools have adopted peer-based programs. These programs appear to raise student knowledge of warning signs and increase the likelihood that at-risk students are referred to appropriate services.[133]

Positive results from such programs offer hope that schools can create effective suicide-prevention programs. Combined approaches that offer training to teachers, counselors and student volunteers can increase the ability of schools to respond to student needs, and reduce the chance that students will engage in suicidal behaviors.

## EXPAND GATEKEEPER TRAINING

Someone contemplating suicide is not likely to ask directly for help, but may show signs of considering suicide. Gatekeeper training programs have been created to help those who know suicidal individuals to recognize signs of trouble and to refer them to appropriate caregivers. (A "gate-keeper" might be a friend, teacher, counselor, police officer, clergy, family member or anyone living in a community who can identify and provide assistance to people who are suicidal.)

Gatekeeper training helps people recognize suicide-warning signs and react to someone they believe might commit suicide, abilities most people lack. One recent survey, for example, found that of 228 high school health teachers, only 9% believed they could correctly identify a suicidal student.[134] Another study reported that less than one in three high school counselors felt confident in his or her ability to identify a student at risk for suicide.[135]

Gatekeeper training attempts to correct this deficit in knowledge by teaching potential community gatekeepers about risk factors for suicide and/or how to develop clear referral and crisis plans when a gatekeeper suspects that someone needs their help. While gatekeeper programs vary widely in breadth and depth, they tend to be well received and are recognized as an effective suicide-prevention strategy.[136] [137]

Evaluations of gatekeeper training have shown that these programs appear to increase knowledge among program participants and enhance their interest in and ability to refer someone for professional help. School personnel who attended a two-hour New Jersey school-gatekeeper project reported increased awareness of suicide warning signs, greater knowledge of treatment resources and an enhanced willingness to make referrals.[138] General practitioners attending a one-day suicide gatekeeper workshop were also found to have enhanced ability to detect suicidal thinking, while students who participated in a peer assistance program became more aware of suicide risk factors and resources for assistance.[139] [140]

To date, no evaluations have definitively linked gatekeeper training with a reduction in suicide attempts or completions, despite the popularity of these programs. As gatekeeping programs become part of a more comprehensive, community-based approach to suicide prevention, two critical questions need to be examined:

- *Are correct identifications of people at risk for suicide being made?*
- *Do appropriate referral sources exist after people at risk have been identified?*

With these questions in mind, gatekeeping might best be defined as one step in a more comprehensive suicide-prevention program. Evaluating the quality of these risk-identification programs and their ability to link people at risk to more formal systems of care will help guarantee that gatekeepers are effective in assisting people who require professional assistance, but who are not in any system of care.

### Key Gatekeepers

- Teachers and school staff
- School health personnel
- Clergy
- Police officers
- Correctional personnel
- Supervisors in occupational settings
- Natural community helpers
- Hospice and nursing home volunteers
- Primary health care providers
- Mental health care and substance abuse treatment providers
- Emergency health care personnel

*Source: U.S. Department of Health & Human Services, 2000*

## PROVIDE SERVICES TO PEOPLE EXPERIENCING TRAUMATIC EVENTS

Post-traumatic stress disorder (PTSD) is a response to traumatic experiences or catastrophic events, such as rape; sexual or physical abuse; criminal assault; sniper attack; military combat; severe accidents; natural disasters; witnessing a sibling, peer or family member commit suicide or homicide; or acts of community violence. The disorder also can co-occur with a physical injury that requires trauma surgery, reconstructive surgery and rehabilitation and is, therefore, an important issue in hospital care and outpatient recovery for certain individuals.[141]

When people experience a catastrophic event, each will react psychologically to the event in a different way. While most victims will experience transient symptoms of anxiety, depression and stress-related behaviors, some will develop post-traumatic stress disorder in response to traumatic experiences. PTSD can have a critical and long-lasting impact on the lives of both

adolescents and adults. Therefore, caregivers should be encouraged to recognize the disorder's distinguishing characteristics and to implement prevention and earlier treatment, thus averting some of the negative consequences of PTSD, including suicide.

Both adults and adolescents experience similar symptoms: reliving the event; avoidance of stimuli associated with the trauma or numbing of general responsiveness; persistent symptoms of increased arousal such as difficulty sleeping, irritability and anger; difficulty concentrating; and duration of these symptoms for at least one month.[142] PTSD shares symptoms with other common psychiatric disorders and may coexist with other conditions. Sufferers commonly are anxious and depressed. Although PTSD results from exposure to severely distressing events, it is unknown why some individuals are more vulnerable or less resistant to them than are others.

The type of treatment required depends on the nature of the trauma, the psychological health of the individual, availability of ongoing social support and the extent of other life stressors. Four phases of possible treatment include prevention and psychological first-aid, specialized initial consultation, brief therapy and long-term therapy. These interventions may need to be provided for the individual, as well as his or her immediate support group (primarily family and friends/peers) and coworkers.[143]

In the community, both health and mental health professionals should be trained to provide a PTSD response, and appropriate resources must be made available to recognize and treat PTSD. Treatments of the disorder require accurate diagnosis, assessment of suicide risk and appropriate psychotherapy and psychopharmacology. To prevent PTSD, community-based networks and systems of care also will need to be in place and communities will need to work to prevent the catastrophic events that contribute to the disorder.

### Protective Factors For Suicide

- *Effective clinical care for mental and physical health and substance use disorders is available*
- *Access to a variety of clinical interventions is available and support exists for people seeking help*
- *Access to highly lethal means of suicide is restricted*
- *Family and community support is strong*
- *Medical and mental health care relationships are supportive*
- *Problem solving, conflict resolution and nonviolent handling of disputes is common*
- *Cultural and religious beliefs discourage suicide and support self-preservation*

*Source: U.S. Department of Health & Human Services, 2001*

## Strategy #2: Improve Care for At-Risk Individuals

### Refine and Distribute Screening Assessment Tools

Assuming that the strongest predictors of suicide among teens can be identified, screening assessments offer one way to find these at-risk youth and refer them to appropriate community resources. Among youth, factors that predict suicide behavior include a diagnosis of a psychiatric disorder, a history of previous suicide attempts or admission to a psychiatric hospital, access to firearms, traumatic life events, sexual identity concerns or problems with school, peers, substance abuse or family disorder.[144] [145]

When teens are contemplating suicide, many of the warning signs are missed. Parents tend to underestimate the frequency of drug, alcohol and tobacco use, weapon-carrying in school, sexual intercourse and even suicide attempts.[146] Primary-care physicians also may remain unaware of suicidal thoughts or previous suicide attempts among their teen patients, because younger people are often reticent to discuss such issues if they are not prodded.[147]

The assessment tools that have been developed vary for different settings, but tend to determine how likely the identified behavior is to result in a suicide attempt. In a given year, only a very small number of teens (about 10 per 100,000 in Colorado) will actually die from a suicide attempt, but another 50 teens, per 100,000, attempt suicide and require hospitalization.[148] Despite these relatively low numbers, screenings will show that many teens have at least some risk factors and/or some psychiatric diagnoses even if most will not actually attempt suicide. Hence, even the best assessment tools yield a high number of false-positives – that is, teens who appear to be at risk even if they are unlikely to commit suicide.

Questions have been raised as to whether screening makes sense for all teens or for at-risk teens only. The U.S. Preventive Services Task Force has found insufficient evidence to make recommendations for routine screening by primary-care clinicians, but the task force does recommend that providers be trained to be alert to warning signs of suicide.[149] The American Academy of Pediatrics suggests that all pediatricians question their teen patients about suicidal thoughts as part of their routine medical history, while the American Medical Association recommends that suicide screenings be done annually.[150] [151]

The role of screening in an overall suicide-prevention program has yet to be determined. Though screening assessment tools are one of the most consistently evaluated methods of identifying at-risk adolescents, their role in decreasing the frequency of suicide remains open to debate.

## Common Warning Signs

- Giving away favorite possessions
- A marked or noticeable change in an individual's behavior
- Previous suicide attempts and statements revealing a desire to die
- Symptoms of depression including crying, insomnia, inability to think or function, excessive sleep or appetite loss
- Inappropriate good-byes
- Verbal behavior that is ambiguous or indirect: "I'm going away on a real long trip," "You won't have to worry about me anymore," "I want to go to sleep and never wake up"
- Purchase of a gun or pills
- Alcohol or drug abuse
- Sudden happiness after long depression
- Obsession about death and talk about suicide
- Decline in performance of work, school or other activities
- Deteriorating physical appearance or reckless actions

*Source: U.S. Department of Health & Human Services, 2001*

## EXPAND PROFESSIONAL TRAINING ON SUICIDE PREVENTION

Several suicide-prevention training programs have been developed to help health professionals manage suicidal individuals more effectively.[152]

One six-month training program for mental health professionals, primary health care professionals and emergency room personnel significantly increased awareness of suicide warning signs, appropriate referrals of individuals at risk and improved crisis management services.[153]

Improving the diagnostic skills of primary-care physicians can offer particular advantages. Despite the fact that up to 60% of individuals who commit suicide see their primary-care physician immediately before their death, physicians generally do not assess the risk for suicide unless there has been evidence of psychiatric disorders.[154] Experts in the field have recommended improved training at the student-, residency- and continuing education-levels.

One problem for health care providers, particularly those outside of the mental health services arena, is that suicide is a relatively infrequent event. Effective, office-based screening tools offer ways to simplify the task of identifying those most at risk for suicide.[155] Because of the stigma associated with suicide attempts and deaths, screening tools are likely to be most effective when they assess a range of lifestyle problems, including stress, smoking and exercise. Computerized screening aids may help improve patient assessment, referral and management practices.[156]

Several websites offer more general resources about training and risk management programs. These include:

- *QPR Institute, which provides multidisciplinary training to professionals and the general public (http://www.qprinstitute.org)*
- *Suicide Prevention Training Programs, which offers practical skill-development workshops (http://www.suicideinfo.ca/siec.htm)*
- *The National Youth Suicide Prevention Strategy, which summarizes education and training programs on youth suicide prevention (http://www.ysp.medeserv.com.au/)*
- *The Training Institute for Suicide Assessment and Clinical Interviewing, which provides specific training resources (http://www.suicideassessment.com).*

## IMPROVE THE ABILITY OF MENTAL HEALTH PROVIDERS TO ADDRESS SUICIDE

Colorado has a network of public mental health facilities throughout the state that offer crisis intervention and routine treatment services for people identified as suicidal. Yet the current mental health system is burdened as a result of the following problems:

**1) Understaffing:** Colorado has 16 counties that have been designated as mental health manpower shortage areas by the U.S. Department of Health and Human Services. In interviews, managers of the community mental health centers (CMHC) echoed the need for additional staff, particularly in areas where the CMHC must provide emergency services for three or more counties.

**2) Underfinancing:** Patients without adequate mental health insurance coverage often fail to obtain needed services.[157] In Colorado, state funds are not sufficient to cover these costs. The public system absorbs some of this cost and individuals also are referred to those few mental health agencies that provide services on a pro bono basis to individuals who cannot afford to pay for them. In most CMHC, these indigent clients are placed on a waiting list to begin routine care.

**3) Uneven distribution of resources:** The distribution of psychiatric inpatient, acute-treatment beds and emergency rooms with on-site psychiatric services is uneven across the state.[158] The central Front Range and Western Slope have more adult inpatient resources per capita, while the central and southern Front Range have more child and adolescent inpatient resources per capita.

**4) Low public awareness of the problem of suicide:** The clinical services provided by CMHC and clinics best address the problem of suicide when the services are perceived as components of a community-wide system of suicide-prevention services. Among the most-needed efforts are programs that provide education to the general public about the problem of suicide and offer guidelines on how to identify individuals who are at high risk of suicide. The CMHC managers interviewed for this report perceive a great need for community training regarding the problem of suicide and how community gatekeepers can connect individuals at risk of suicide with mental health services.

Clearly, these problems influence the ability of Colorado's public mental health care system to meet the needs of those with mental illness and, in particular, people at risk for suicide. Recent estimates of unmet need compiled for Colorado Mental Health Services indicate there may be as many adults with serious mental illness who are not receiving mental health services as there are individuals who do receive such services from existing public mental health facilities. Strengthening Colorado's public mental health system should be an essential component of any effort to create a statewide response to the problem of suicide.

## *Risk Factors for Suicide*

### Biopsychosocial risk factors

- Mental disorders, particularly mood disorders, schizophrenia, anxiety disorders and certain personality disorders
- Alcohol and other substance use disorders
- Feelings of hopelessness
- Impulsive and/or aggressive tendencies
- History of trauma or abuse
- Major physical illnesses
- Previous suicide attempt
- Family history of suicide

### Environmental risk factors

- Job or financial loss
- Relational or social loss
- Easy access to lethal means
- Local clusters of suicides that have a contagious influence on others' plans

### Sociocultural risk factors

- Lack of social support and sense of isolation
- Stigma associated with seeking help
- Barriers to accessing health care, especially mental health and substance abuse treatment
- Certain cultural and religious beliefs (for instance, the belief that suicide is a noble resolution of a personal dilemma)
- Exposure to and influence of others who have died by suicide

## PROVIDE SUPPORT FOR SUICIDE SURVIVORS

One suicidologist has estimated that each suicide significantly affects at least six other people. Immediate survivors include family, friends and coworkers of suicide victims. Common reactions to a suicide death include guilt, shame, shock, grief and a need to understand why the suicide occurred. Addressing the emotional needs of survivors typically entails the provision of "postvention" or professional services offered after a tragedy, as well as long-term counseling and support groups. Through social support, the immediate trauma of a suicide death can be eased and the emotional recovery of survivors hastened.[159]

A substantial number of survivor-of-suicide support groups have been created across the United States and Canada. According to one estimate, more then 300 such groups are currently active, including large-scale, multistate organizations promoting primary suicide prevention.[160] After experiencing the suicide of a loved one, many survivors feel deeply committed to ensuring that others do not have to endure a similar kind of grief, leading them to be natural and passionate community advocates for suicide prevention. While survivor groups vary in the strategies they promote for suicide prevention (i.e., gatekeeper training or public awareness), all take advantage of the enthusiasm of their members to build networks of community support.

One example of a suicide survivor group that has developed into a broad-based advocacy organization is the Colorado-based Yellow Ribbon Suicide Prevention Program. Since its founding in 1994, the program has grown into an international organization with chapters across the United States, Canada, Australia and New Zealand. Yellow Ribbon endeavors to prevent suicide through community awareness, gatekeeper training, education for youth and adults, and providing a community model to identify suicide-related resources.[161]

With the organizing efforts of these groups gaining in popularity,[162] some program evaluations are under way. For example, an evaluation of the Yellow Ribbon Minnesota chapter has been funded by a Substance Abuse and Mental Health Services Administration grant. Begun in 1997, this evaluation should be completed in 2003. Initial results show that participants are generally satisfied with the program and report increases in knowledge.[163] A less intensive evaluation of the Yellow Ribbon program in metropolitan Denver also is being conducted. This evaluation, funded by The Colorado Trust and begun in 2000, should be completed in 2004.

Survivors of suicide are a reserve of committed advocates in the struggle against suicide. By raising community awareness, support groups have helped to keep suicide prevention a priority in public health. Further evaluation of specific suicide-prevention strategies will better inform these survivor groups as to the types of evidence-based approaches that can help them to take full advantage of their passion and commitment to suicide prevention.

## ENCOURAGE CULTURALLY COMPETENT APPROACHES

Communities of color – African-American, Hispanic/Latino, American Indian and Asian/Pacific Islanders – define and experience suicide from unique cultural perspectives. The diverse norms, beliefs and life experiences of these groups require that suicide prevention strategies be tailored to acknowledge how the needs of clients vary in terms of their age, gender, race, ethnicity and culture.[164] When suicide interventions are customized in this manner, people are more likely to use these services, and the services are more likely to be effective.[165]

Culturally competent service delivery acknowledges and values a person's culture and offers services that he or she recognizes as appropriate.[166] According to the U.S. Surgeon General, striking disparities exist in the use and availability of mental health services among minority and elderly populations. Addressing the disparities requires that interventions be developed in cooperation with diverse community members in a manner that is based on the groups' histories, migratory experiences, cultural identities, discriminatory experiences and cultural interpretations of physical and mental health.[167]

In Colorado, the rates of suicide deaths are highest among non-Hispanic/whites, followed by Hispanics (11.9), African-Americans (9.1), Native Americans (10.3) and Asians (8.0). Suicide remains, however, a problem across racial and ethnic lines.

- *Within the Hispanic population, overall suicide death rates are two-thirds those of non-Hispanic/whites; yet, among female high-school Hispanic students, the rate of attempted suicide (14.9%) was 150% higher than the rate for African-American (9%) and non-Hispanic/white girls (10.3%).*
- *For the past 15 years, suicide has been the second-leading cause of death for 15-to-24-year-old American Indians and Alaska natives.*
- *Suicide death rates for Asian women are the highest among all women in the 15-to-24 and the 65-and-over age categories.*

These varying patterns of suicide confirm the need for community responses that recognize how the risk for suicide behavior varies from group to group, and ensure that all cultural viewpoints are honored as interventions are developed.

Cultural traditions also can serve as a protective factor in preventing suicide behaviors. Within the Hispanic culture, traditions emphasizing the role of the family provide resilience and social support and help reduce the risk for negative mental health outcomes.[168] Also, African-Americans have been found to have stronger coping skills and resiliency and are less likely to engage in suicidal behaviors than non-Hispanic/whites.[169]

Clearly, strategies designed to address the separate needs of people from different cultural backgrounds must take into account how these backgrounds define the potential need for suicide-prevention services, how these services should be delivered and how cultural strengths and assets can be mobilized to ensure each individual's recovery.

## Strategy #3: Promote Policies to Help Reduce the Risk of Suicide

### Improve Financing for Mental Health Services

To improve the ability of the mental health system to meet the needs of individuals at risk for committing suicide, mental health services should be available and affordable, particularly to people contemplating suicide.

Providing appropriate treatment for mental illness can be costly. One study has shown that it costs roughly $2,430 a year to treat patients who suffer a serious mental illness.[170] Yet, many Americans eligible for treatment have limited or no insurance coverage for mental health services. As reported by the U.S. Surgeon General, insurance coverage for mental health is extremely variable across different types of plans and sponsors, with most plans offering less than adequate coverage.[171]

In recent years, concerns about the adequacy of insurance benefits and the quality of care for individuals with mental illness have led the majority of states and the federal government to consider equivalent coverage for mental health and medical conditions. This concept is termed parity. Under a parity mandate, all insurers in a market must offer the same level of coverage for all disorders.

The Federal Mental Health Parity Act, implemented in 1998, mandates that there be parity in the coverage of catastrophic benefits for both physical and mental illnesses. Colorado's parity legislation, passed in 1997, requires that most group plans, health maintenance organizations and insurers provide the same benefits for six biologically-based mental illnesses as for any other medical disorder. These illnesses are: schizophrenia, schizoaffective disorder, bipolar disorder, major depression, panic disorder and obsessive-compulsive disorder. The Colorado law currently applies to only 60% of existing health plans.[172]

Equalizing insurance coverage for mental and physical health services benefits those who have access to health insurance. For uninsured people, the public mental health system subsidizes the delivery of necessary treatment. Between 1990 and 1997, per-capita expenditures for mental health in Colorado increased slightly, although expenditures did not keep pace with inflation. Per-capita spending went from $33.55 to $56.71, placing Colorado 35th in mental health spending among the states.[173]

Providers of mental health services throughout Colorado have indicated that public funds for mental health services are not adequate to meet demand.[174] In the current service system, the most severe forms of mental illness are more likely to receive treatment. Limited resources are available to help care for individuals not receiving treatment, patients with less severe forms of mental illness and people reluctant to seek services.[175] To prevent suicide attempts and deaths, the state of Colorado needs to make a commitment to ensure funding from both public and private sources so that necessary services are both available and affordable.

### Reduce Access to Firearms

Suicide attempts are most likely to result in death when lethal means are used. Firearms caused over half of all suicide deaths in Colorado between 1996 and 1998.[176]

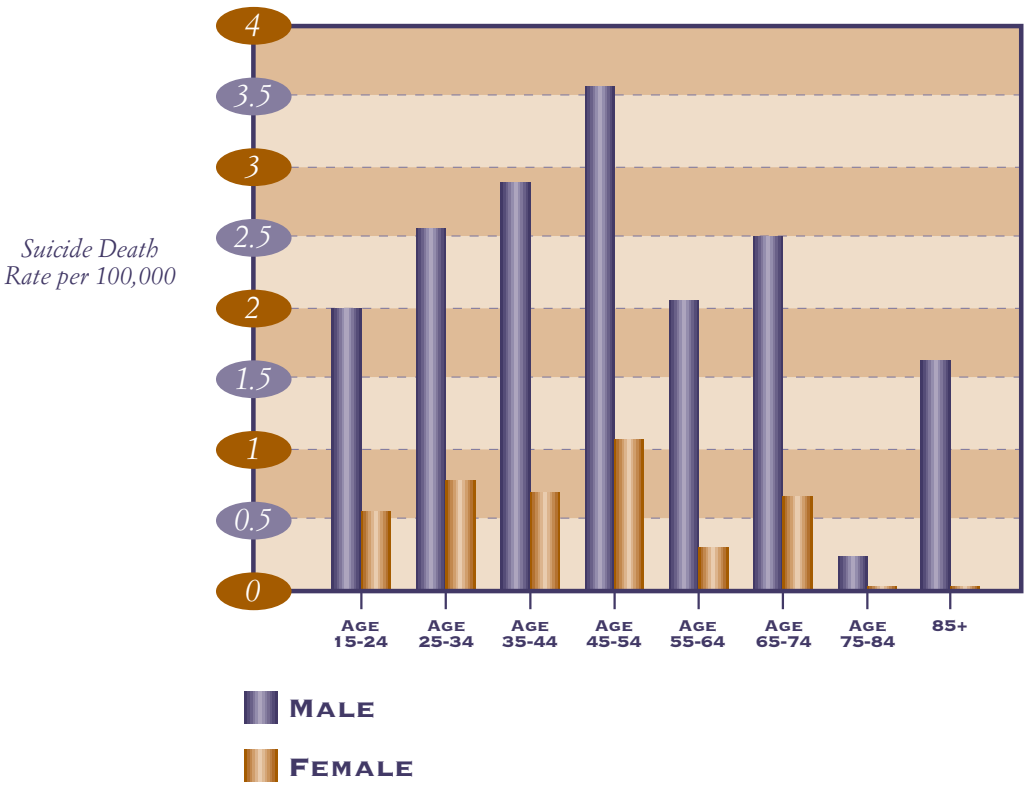
Access to guns is common in the United States. Between 40% and 50% of all U.S. households contain a firearm.[177] Colorado is one of only 15 states that maintain a system for conducting background checks on potential gun buyers that is more comprehensive than the national system.[178] However, restricting access to gun purchases may not be sufficient. Research has shown that people who use guns to commit suicide are not always the owners of the guns.[179] Moreover, some researchers have argued that people intent on suicide may switch to other means when guns are less available.[180]

Policies to restrict access to firearms include: education, improved storage and technologies to ensure that firearms are not fired unintentionally or by individuals whose access to firearms should be limited. According to the Youth Suicide by Firearms Task Force, encouraging the safe storage of guns is the one preventive strategy that can decrease the number of youth suicides.[181] Restricting the access of lethal firearms can be a particularly effective means of reducing impulsive acts of self-injury or self-destruction.

A 1994 case-control study by the Colorado Department of Public Health and Environment confirmed that, among youth who committed suicide between 1991 and 1993, the presence of a gun in their homes increased the risk of suicide fourfold, even after other risk factors such as mental health treatment were considered.[182]

To assist with the goal of limiting access to lethal firearms, the American Academy of Pediatrics has developed guidelines to help health care providers talk with parents about the presence of guns in their homes.[183]

## *Suicide Death Rate Due to Firearms*




*Source: Colorado Department of Public Health and Environment, 2001*

# conclusion

**The results of the report show that suicide is a serious problem in the state of Colorado:**

- *Every year, Colorado records roughly 600 suicide deaths and an estimated 9,600 suicide attempts.*
- *Many of those most at risk for suicide suffer from depression, other forms of mental illness and substance abuse.*
- *At least half of those at risk for suicide are not seeking any type of professional services for the problem. This is particularly true for young people, middle-aged men and the elderly.*

The most promising model programs that address suicide provide screening and assessment tools for identifying people at risk for suicide. Specific treatment approaches also have been shown to be effective in reducing suicide behavior among subgroups of people diagnosed as mentally ill. At the community level, there is some preliminary evidence from the U.S. Air Force that a concerted, comprehensive and intensive suicide-prevention strategy can result in reduced suicide rates.

In summer 2001, the U.S. Surgeon General called for communities across the nation to institute broad-scale, comprehensive strategies to prevent suicide that include, among other approaches, increased public awareness and education, the development of community-based suicide-prevention programs, more effective clinical service delivery and improved ties among community-based providers.[184] This report substantiates the merit of such an approach and provides specific strategies that can be adopted singly or in combination by those interested in developing community-based suicide-prevention campaigns.

Suicide is a devastating event, one rendered all the more tragic because, in many instances, preventive treatment is available. Communities can respond to this problem by building on existing resources to create a more focused network of formal and informal sources of support that can readily recognize those at risk, ensure that appropriate services are available and used, and link providers to ensure efficient and effective service delivery. Such a comprehensive approach offers the best hope that preventable suicide deaths can in fact be averted.

# *appendix*

**TABLE 1: NUMBER OF SUICIDE DEATHS BY COUNTY, COLORADO, 1991 – 2000**

| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Adams | 56 | 56 | 56 | 59 | 56 | 53 | 52 | 58 | 36 | 50 | 532 |
| Alamosa | * | * | * | * | * | 4 | 7 | * | * | 5 | 30 |
| Arapahoe | 56 | 57 | 52 | 63 | 63 | 65 | 55 | 63 | 58 | 53 | 585 |
| Archuleta | * | * | | | * | * | * | * | 5 | * | 15 |
| Baca | | | * | | * | * | | | * | * | 7 |
| Bent | | * | | | | * | | * | | | 4 |
| Boulder | 46 | 44 | 38 | 39 | 30 | 42 | 42 | 55 | 44 | 49 | 429 |
| Chaffee | 4 | * | 7 | 6 | 6 | * | * | 5 | * | 6 | 45 |
| Cheyenne | | * | * | | | * | * | | * | | 5 |
| Clear Creek | * | * | * | 4 | * | * | * | * | * | | 16 |
| Conejos | * | * | * | * | * | | * | * | * | * | 12 |
| Costilla | | * | | * | * | * | * | | | * | 7 |
| Crowley | | * | * | * | | * | * | | | | 5 |
| Custer | * | | | | | | | | * | | * |
| Delta | * | 4 | 7 | 6 | 4 | 7 | 13 | 4 | 9 | 6 | 61 |
| Denver | 99 | 97 | 113 | 105 | 116 | 106 | 80 | 74 | 65 | 87 | 942 |
| Dolores | | | | | * | | | | * | | 5 |
| Douglas | 10 | 8 | 7 | 10 | * | 12 | 15 | 16 | 11 | 15 | 107 |
| Eagle | 4 | * | 6 | * | 4 | 4 | * | 4 | * | * | 33 |
| Elbert | * | * | * | * | * | * | * | 6 | * | * | 24 |
| El Paso | 57 | 64 | 71 | 60 | 101 | 72 | 71 | 68 | 64 | 68 | 696 |
| Fremont | 7 | 14 | 6 | 11 | 10 | 12 | 11 | 7 | 12 | 12 | 102 |
| Garfield | 4 | 8 | 5 | 6 | 6 | 9 | 10 | 8 | 9 | 8 | 73 |
| Gilpin | * | * | * | | * | * | * | | * | * | 13 |
| Grand | 4 | * | * | * | * | * | * | | * | * | 19 |
| Gunnison | * | | * | * | * | * | * | * | 5 | * | 19 |
| Hinsdale | | | | | | * | * | | * | | * |
| Huerfano | * | * | * | * | * | * | * | * | * | | 14 |
| Jackson | | | | | | | * | * | * | * | 4 |
| Jefferson | 64 | 84 | 69 | 37 | 82 | 70 | 85 | 76 | 85 | 64 | 746 |

| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Kiowa | | * | | | | | | | | | * |
| Kit Carson | | | | * | * | * | * | 4 | * | | 12 |
| La Plata | 6 | 6 | 6 | 10 | 4 | 7 | 11 | 7 | 7 | 5 | 69 |
| Lake | * | | | * | | * | * | | * | * | 13 |
| Larimer | 30 | 30 | 35 | 25 | 27 | 37 | 33 | 35 | 28 | 35 | 315 |
| Las Animas | * | | 4 | * | 5 | * | 4 | * | * | * | 22 |
| Lincoln | * | | * | | * | * | * | | | * | 8 |
| Logan | * | * | * | * | * | * | * | * | * | * | 15 |
| Mesa | 15 | 15 | 23 | 20 | 20 | 38 | 13 | 22 | 24 | 29 | 219 |
| Mineral | | * | | | | | * | | * | | * |
| Moffat | * | * | | * | * | * | * | * | * | 4 | 19 |
| Montezuma | 7 | * | 4 | 5 | 5 | 8 | 4 | * | * | * | 42 |
| Montrose | 8 | 5 | * | 6 | 7 | 10 | 7 | 6 | * | 8 | 63 |
| Morgan | * | 5 | 6 | 6 | * | 5 | * | 6 | * | 4 | 41 |
| Otero | * | * | * | 4 | 8 | * | 5 | * | 5 | * | 34 |
| Ouray | | * | | * | | | * | * | | | 4 |
| Park | * | * | * | * | | * | 4 | | * | * | 18 |
| Phillips | | * | | * | | * | | * | * | * | 8 |
| Pitkin | * | * | 5 | * | * | * | 4 | | * | * | 22 |
| Prowers | * | * | * | | * | | * | 5 | * | 4 | 19 |
| Pueblo | 17 | 18 | 25 | 29 | 16 | 17 | 28 | 29 | 23 | 25 | 227 |
| Rio Blanco | * | * | | * | * | | * | * | * | | 8 |
| Rio Grande | * | * | * | * | * | 6 | * | * | * | * | 22 |
| Routt | 4 | * | * | * | * | * | 4 | 5 | * | * | 26 |
| Saguache | * | * | | | | * | * | | | | 5 |
| San Juan | | * | | | | | * | * | | | 4 |
| San Miguel | * | | * | | | 4 | * | | | | 9 |
| Sedgwick | * | * | | | | * | * | | * | * | 7 |
| Summit | | 4 | * | | * | * | * | * | * | 5 | 22 |
| Teller | 4 | 5 | 6 | 8 | 4 | 5 | 4 | 4 | * | 4 | 47 |
| Washington | * | * | * | | | | | | * | | 5 |
| Weld | 26 | 25 | 14 | 20 | 27 | 29 | 24 | 25 | 24 | 18 | 232 |
| Yuma | 4 | * | * | * | | * | * | * | | * | 15 |
| Unknown/Unstated | 7 | 7 | 14 | 13 | 10 | 10 | 11 | 7 | 8 | 13 | 100 |
| TOTAL | 580 | 604 | 616 | 614 | 653 | 688 | 641 | 631 | 587 | 617 | 6231 |

*Source: Vital statistics data from the Colorado Department of Public Health and Environment*
** Indicates fewer than three deaths occured by suicide.*

## TABLE 2: AGE-ADJUSTED SUICIDE RATES BY COUNTY, COLORADO, 1991 – 2000* - PER 100,000 POPULATION

| County | Mean 10-Year Age-Adjusted Rate |
|---|---|
| Adams | 19.02 |
| Alamosa | 23.53 |
| Arapahoe | 14.47 |
| Archuleta | 18.20 |
| Baca | 16.61 |
| Boulder | 18.07 |
| Chaffee | 31.51 |
| Cheyenne | 26.54 |
| Clear Creek | 18.75 |
| Conejos | 17.85 |
| Costilla | 22.90 |
| Crowley | 12.10 |
| Delta | 25.94 |
| Denver | 19.34 |
| Dolores | 48.03 |
| Douglas | 11.46 |
| Eagle | 16.24 |
| Elbert | 16.48 |
| El Paso | 19.40 |
| Fremont | 25.36 |
| Garfield | 21.66 |
| Gilpin | 33.52 |
| Grand | 21.56 |
| Gunnison | 17.71 |
| Huerfano | 21.96 |
| Jefferson | 16.26 |
| Kit Carson | 18.96 |
| La Plata | 20.30 |
| Lake | 21.94 |
| Larimer | 15.45 |
| Las Animas | 17.14 |
| Lincoln | 16.87 |
| Logan | 8.87 |
| Mesa | 21.78 |

| | |
|---|---|
| Moffat | 16.68 |
| Montezuma | 22.78 |
| Montrose | 24.63 |
| Morgan | 19.39 |
| Otero | 17.85 |
| Park | 16.18 |
| Phillips | 19.97 |
| Pitkin | 21.82 |
| Prowers | 16.01 |
| Pueblo | 18.67 |
| Rio Blanco | 14.65 |
| Rio Grande | 22.45 |
| Routt | 19.57 |
| Saguache | 9.69 |
| San Miguel | 38.18 |
| Sedgwick | 27.32 |
| Summit | 13.12 |
| Teller | 29.99 |
| Washington | 10.77 |
| Weld | 16.86 |
| Yuma | 17.19 |

**Note: The population-weighted, age-adjusted suicide rates were calculated in the following manner using vital statistics data from the Colorado Department of Public Health and Environment. Separate suicide rates were calculated for 11 age categories by dividing the number of suicide deaths in each age category by the appropriate population for each age group for each of 10 years (1991-2000). The resulting age-specific suicide death rates were then standardized by multiplying each rate by the year 2000 adjustments assigned to each age category and then summed for each county for each year to obtain the age-adjusted suicide death rate for that county and year.*

## TABLE 3: RISKS SCORES FOR SUICIDE ATTEMPTS BY COUNTY, COLORADO

| County | Risk Score (0-100 scale)* | Risk Score Quartile<br>1 = Highest risk score quartile<br>4 = Lowest risk score quartile |
|---|---|---|
| Adams | 7.87 | 3 |
| Alamosa | 8.41 | 2 |
| Arapahoe | 7.85 | 3 |
| Archuleta | 8.55 | 2 |
| Baca | 8.32 | 2 |
| Bent | 9.62 | 1 |
| Boulder | 7.51 | 3 |
| Chaffee | 9.11 | 1 |
| Cheyenne | 7.17 | 4 |
| Clear Creek | 7.90 | 3 |
| Conejos | 8.77 | 2 |
| Costilla | 10.69 | 1 |
| Crowley | 9.98 | 1 |
| Custer | 8.27 | 3 |
| Delta | 10.01 | 1 |
| Denver | 9.48 | 1 |
| Dolores | 10.55 | 1 |
| Douglas | 6.89 | 4 |
| Eagle | 7.28 | 4 |
| El Paso | 8. 75 | 2 |
| Elbert | 5.79 | 4 |
| Fremont | 9.84 | 1 |
| Garfield | 7.62 | 3 |
| Gilpin | 5.26 | 4 |
| Grand | 7.85 | 3 |
| Gunnison | 8.18 | 3 |
| Hinsdale | 4.81 | 4 |
| Huerfano | 7.65 | 3 |
| Jackson | 7.79 | 3 |
| Jefferson | 7.11 | 4 |
| Kiowa | 8.38 | 2 |
| Kit Carson | 7.79 | 3 |

| | | |
|---|---|---|
| La Plata | 8.01 | 3 |
| Lake | 8.46 | 2 |
| Larimer | 7.82 | 3 |
| Las Animas | 9.98 | 1 |
| Lincoln | 8.30 | 2 |
| Logan | 7.65 | 3 |
| Mesa | 9.11 | 1 |
| Mineral | 8.18 | 3 |
| Moffat | 8.55 | 2 |
| Montezuma | 8.69 | 2 |
| Montrose | 8.13 | 3 |
| Morgan | 8.27 | 3 |
| Otero | 10.07 | 1 |
| Ouray | 8.41 | 2 |
| Park | 7.34 | 4 |
| Phillips | 8.75 | 2 |
| Pitkin | 8.10 | 3 |
| Prowers | 8.30 | 2 |
| Pueblo | 10.12 | 1 |
| Rio Blanco | 8.91 | 2 |
| Rio Grande | 9.70 | 1 |
| Routt | 7.09 | 4 |
| Saguache | 9.62 | 1 |
| San Juan | 9.84 | 1 |
| San Miguel | 7.96 | 3 |
| Sedgwick | 9.11 | 1 |
| Summit | 6.72 | 4 |
| Teller | 5.99 | 4 |
| Washington | 7.68 | 3 |
| Weld | 8.58 | 2 |
| Yuma | 8.86 | 2 |

*Source: Data were derived from the National Comorbidity Survey, a nationally representative population survey of 8,098 persons between the ages of 15 to 54 who were surveyed between 1990 and 1992.*

**Note: To develop a risk score for suicide attempts, a logistical regression model was created using "serious risk for attempt" as the dependent variable. Using data from the National Comorbidity Survey, five variables, found to be significantly related to suicide attempts, were used to develop a risk score for each Colorado county. These were: female gender, living alone, employment, past-year major depression diagnosis and past-year other psychiatric diagnosis. County-specific data were then used to determine the estimated risk for suicide attempts in each Colorado county.*

## TABLE 4: ESTIMATED NUMBER AND PERCENT OF COLORADANS WITH MENTAL ILLNESS, BY COUNTY, COLORADO*

| County | Major Depression | | Other Psychiatric Illness | |
|---|---|---|---|---|
| | Cases | Percent | Cases | Percent |
| Adams | 6907 | 3.67 | 40773 | 21.68 |
| Alamosa | 381 | 3.94 | 2087 | 21.60 |
| Arapahoe | 10315 | 3.62 | 59653 | 20.91 |
| Archuleta | 120 | 3.19 | 738 | 19.60 |
| Baca | 96 | 2.83 | 664 | 19.49 |
| Bent | 110 | 2.96 | 733 | 19.69 |
| Boulder | 6807 | 3.92 | 37571 | 21.66 |
| Chaffee | 304 | 3.10 | 2006 | 20.49 |
| Cheyenne | 51 | 3.08 | 324 | 19.75 |
| Clear Creek | 195 | 3.47 | 1158 | 20.54 |
| Conejos | 151 | 3.10 | 964 | 19.80 |
| Costilla | 69 | 3.02 | 441 | 19.34 |
| Crowley | 92 | 2.94 | 713 | 22.89 |
| Custer | 42 | 2.99 | 269 | 19.02 |
| Delta | 455 | 2.87 | 3012 | 19.02 |
| Denver | 13207 | 3.62 | 80775 | 22.15 |
| Dolores | 32 | 2.94 | 217 | 19.94 |
| Douglas | 1417 | 3.40 | 8236 | 19.77 |
| Eagle | 681 | 4.17 | 3773 | 23.12 |
| Elbert | 217 | 3.25 | 1337 | 20.01 |
| El Paso | 10282 | 3.58 | 61101 | 21.25 |
| Fremont | 775 | 3.10 | 5194 | 20.79 |
| Garfield | 769 | 3.54 | 4586 | 21.13 |
| Gilpin | 83 | 3.55 | 484 | 20.72 |
| Grand | 212 | 3.57 | 1271 | 21.36 |
| Gunnison | 348 | 4.28 | 1859 | 22.83 |
| Hinsdale | 12 | 3.25 | 74 | 19.45 |
| Huerfano | 133 | 2.99 | 871 | 19.55 |
| Jackson | 37 | 3.12 | 239 | 20.01 |
| Jefferson | 11222 | 3.48 | 65906 | 20.45 |
| Kiowa | 34 | 2.85 | 234 | 19.41 |
| Kit Carson | 154 | 3.05 | 1005 | 19.88 |
| La Plata | 912 | 3.79 | 5199 | 21.62 |
| Lake | 157 | 3.63 | 935 | 21.57 |

| | | | | |
|---|---|---|---|---|
| Larimer | 5259 | 3.78 | 29355 | 21.11 |
| Las Animas | 320 | 3.12 | 2031 | 19.79 |
| Lincoln | 101 | 3.02 | 656 | 19.65 |
| Logan | 423 | 3.28 | 2596 | 20.14 |
| Mesa | 2383 | 3.50 | 14114 | 20.71 |
| Mineral | 14 | 3.18 | 85 | 19.69 |
| Moffat | 267 | 3.47 | 1621 | 21.10 |
| Montezuma | 401 | 3.12 | 2779 | 21.64 |
| Montrose | 553 | 3.12 | 3533 | 19.93 |
| Morgan | 505 | 3.27 | 3221 | 20.87 |
| Otero | 468 | 3.26 | 2889 | 20.13 |
| Ouray | 54 | 3.16 | 329 | 19.04 |
| Park | 171 | 3.28 | 1023 | 19.61 |
| Phillips | 90 | 2.92 | 579 | 18.75 |
| Pitkin | 447 | 4.25 | 2424 | 23.02 |
| Prowers | 316 | 3.44 | 1947 | 21.20 |
| Pueblo | 3023 | 3.34 | 18384 | 20.30 |
| Rio Blanco | 141 | 3.37 | 861 | 20.61 |
| Rio Grande | 243 | 3.23 | 1518 | 20.19 |
| Routt | 412 | 3.91 | 2353 | 22.32 |
| Saguache | 105 | 3.32 | 663 | 21.03 |
| San Juan | 19 | 3.56 | 115 | 22.05 |
| San Miguel | 119 | 4.22 | 654 | 23.11 |
| Sedgwick | 57 | 2.79 | 380 | 18.67 |
| Summit | 422 | 4.12 | 2381 | 23.27 |
| Teller | 297 | 3.35 | 1768 | 19.95 |
| Washington | 103 | 2.94 | 680 | 19.36 |
| Weld | 3533 | 3.73 | 20425 | 21.54 |
| Yuma | 196 | 3.07 | 1241 | 19.49 |

*Source: Holzer, C.E. et al. (1998). Western Interstate Commission for Higher Education Mental Health Estimation Project. [Computer file]. Galveston, Texas: University of Texas Medical Branch, Psychiatry and Behavioral Science.*

**Note: To be diagnosed with major depression or another psychiatric illnesses, respondents had to meet diagnostic criteria for the disorder as defined in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, 3rd edition (DSM-III) and measured by the NIMH Diagnostic Interview Schedule (DIS), version III. The category of "other psychiatric illnesses" included the following disorders: manic episode, dysthymia, bipolar disorder, alcohol abuse or dependence, drug abuse or dependence, schizophrenia, schizophreniform, obsessive compulsive disorder, phobia, somatization, panic, antisocial personality, and anorexia nervosa.*

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