Suicidal ideation and behavior in adults

AUTHORS: Jennifer Schreiber, MD, Larry Culpepper, MD, MPH
SECTION EDITOR: Peter P Roy-Byrne, MD
DEPUTY EDITOR: David Solomon, MD

All topics are updated as new evidence becomes available and our peer review process is complete.

Literature review current through: **Oct 2023.**
This topic last updated: **Jun 28, 2023.**

INTRODUCTION

Nearly 45,000 people in the United States [1] and more than 800,000 worldwide die by suicide each year [2].

Primary care providers may be in a unique position to prevent suicide due to their frequent interactions with suicidal patients [3]. Reviews suggest that among patients who committed suicide, 80 percent had contact with primary care clinicians within one year of their death, whereas only 25 to 30 percent of decedents had contact with psychiatric clinicians within the year of their death [3,4].

There are no data to show that routine screening for suicide in primary care reduces mortality. Additionally, predicting which patients with suicidal thoughts will go on to attempt suicide cannot be achieved with a high degree of sensitivity or specificity [5,6].

Nevertheless, primary care clinicians see a large portion of the patients who subsequently die by suicide, which suggests that an approach to case finding based upon risk factors, sensitivity to high-risk situations in depressed patients, and assessment of suicidal ideation and behavior in patients being treated for depression are appropriate in the primary care setting, and may uncover patients who make their intent known and are amenable to intervention.

This topic reviews the epidemiology, risk factors, evaluation, initial management, and follow-up of suicidal patients. Other topics discuss the epidemiology, risk factors evaluation, and

management of suicidal ideation and behavior in children and adolescents, as well as the effect of antidepressants on suicide risk in pediatric and adult patients.

- (See "Suicidal behavior in children and adolescents: Epidemiology and risk factors".)
- (See "Suicidal ideation and behavior in children and adolescents: Evaluation and management".)
- (See "Effect of antidepressants on suicide risk in children and adolescents".)
- (See "Effect of antidepressants on suicide risk in adults".)

TERMINOLOGY

Intentional self-injurious thoughts and behavior may be suicidal or nonsuicidal (algorithm 1) [7-11]:

- Suicidal ideation – Thoughts about killing oneself; these thoughts may include a plan.
- Suicide attempt – Self-injurious behavior that is intended to kill oneself, but is nonfatal.
- Suicide – Self-injurious behavior that is intended to kill oneself and is fatal.
- Suicide threat – Thoughts of engaging in self-injurious behavior that are verbalized and intended to lead others to think that one wants to die, despite no intention of dying (eg, "If you leave me, I will kill myself").
- Suicide gesture – Self-injurious behavior that is intended to lead others to think that one wants to die, despite no intention of dying.
- Nonsuicidal self-injurious thoughts – Thoughts of engaging in self-injurious behavior characterized by the deliberate destruction of body tissue in the absence of any intent to die and for purposes that are not socially sanctioned.
- Nonsuicidal self-injury – Self-injurious behavior characterized by the deliberate destruction of body tissue in the absence of any intent to die and for purposes that are not socially sanctioned.

  Self-injurious behavior that is accompanied by **any** intent to die is classified as a suicide attempt, which is consistent with the practice of most clinicians and researchers [9,10], as well as recommendations from the United States Centers for Disease Control and Prevention [11]. This approach deliberately errs on the side of safety by categorizing ambivalent behaviors as suicidal [9].

EPIDEMIOLOGY

Prevalence — Reported rates of suicides probably underestimate the true burden because of misclassification of deaths [12-14]. Suicides may be misclassified as accidents or unintentional because of uncertainty about the decedent's intent as well as sensitivity about suicide and social stigma; in some countries, suicide is illegal. Misclassification may also occur because of legal and procedural issues related to death registration.

Suicide — Across the world in 2015, the age-standardized suicide rate was 12 per 100,000 individuals [2]. There were more than 800,000 deaths from self-harm and among nearly 250 causes of death, suicide was the 14th leading cause of global mortality. The most common methods used include pesticide ingestion, hanging, and firearms [12].

China and India accounted for approximately 50 percent of all suicides [2]. In addition, self-harm was one of the top 10 causes of years of life lost in many countries and regions, including Australia, China, Europe, India, and Japan.

The age-adjusted suicide rate in the United States is more than 15 per 100,000 individuals [15]. In 2016, nearly 45,000 people killed themselves, making suicide the 10th leading cause of death [1]. Among individuals who commit suicide in the United States, firearms (see 'Firearms' below) are involved in approximately 50 percent of the deaths [1]. The second and third leading methods of suicide in the United States are suffocation (eg, hanging, about 25 percent of suicides) and poisoning (eg, drug overdose; about 15 percent).

Suicide attempts — Based upon community surveys in 21 countries (n >100,000 adults), the 12-month prevalence of nonfatal suicide attempts is approximately 0.3 to 0.4 percent [16], and the lifetime prevalence is 3 percent [17]. In the United States in 2015, 1.4 million adults attempted suicide, which amounted to a 12-month prevalence of 0.6 percent [18].

Suicide attempts are far more common than suicide deaths. Each year in the United States, there are more than 30 suicide attempts for each suicide death [19]. Among individuals with nonfatal suicide attempts, approximately 40 percent do not come to medical attention [18].

Suicidal ideation — The World Health Organization conducted community surveys in 21 countries (n >100,000 individuals) and found that the 12-month prevalence of suicidal ideation (thoughts) was approximately 2 percent [16], and that the lifetime prevalence was 9 percent [17].

Other findings from the cross-national study included the following [17]:

- Among individuals with a lifetime history of suicidal ideation, the probability of ever making a plan is approximately 33 percent, and the probability of ever making a suicide attempt is approximately 30 percent.

- Among individuals with a lifetime history of suicidal ideation and a plan, the probability of attempting suicide was approximately 55 percent; among ideators without a plan, the probability of attempting suicide was only 15 percent.

- Consistently across countries, about 60 percent of the transitions from suicidal ideation to suicide plan, and from plan to suicide attempt, occurred in the first year after onset of suicidal ideation.

In the United States, the annual prevalence of suicidal ideation in adults is 4 percent [18]. More than 50 percent of individuals with suicidal thoughts do not receive mental health services.

Sex — Mortality from suicide is higher in males than females [2]. In 2012, the global age-standardized suicide rate in males was 15 per 100,000 individuals and in females was 8 per 100,000, yielding a male to female ratio of 1.9 [12]. However, these rates vary according to national income. In high income countries, the male to female ratio of suicides is 3.5, whereas in middle and low income countries, the ratio is 1.6. High income countries are more likely to provide good quality data.

Community surveys in 21 countries (n >100,000 individuals) estimate that the 12-month prevalence of suicidal ideation (thoughts) is greater in females than males (2.2 to 2.4 percent versus 1.6 to 1.7 percent), whereas the prevalence of suicide attempts is comparable for females and males (0.3 to 0.5 percent and 0.3 to 0.4 percent) [16].

In the United States, public health data indicate that the annual rate of suicide per 100,000 individuals is three to four times higher in males than females (24 versus 7) [15]. However, the annual rate of nonfatal suicide attempts and suicidal ideation are each comparable for females and males [18].

Age — Age related patterns of suicide vary across regions of the world. In most regions, suicide rates for both males and females are highest in persons aged 70 years or more [12]. However, in the United States, the annual rate of suicide attempts is three to five times greater in young adults aged 18 to 25 years, compared with older age groups [18].

The estimated annual rate of suicide deaths per 100,000 males and females in the United States, in different age groups, is as follows [20]:

- 15 to 24 years – males 18, females 5

- 25 to 44 years – males 24, females 7
- 45 to 64 years – males 30, females 10
- 65 to 74 years – males 27, females 6
- 75 or more years – males 39, females 4

Race/ethnicity — In the United States, suicide is a common cause of death in most racial/ethnic groups. Data from 2016 found that suicide was one of the 10 leading causes of death in American Indians/Alaska Natives, Asian Americans/Pacific Islanders, Hispanic Americans, and White Americans (but not Black Americans) [1].

The annual rate of suicide per 100,000 individuals is two to four times greater for American Indians/Alaska Natives and White Americans than other racial groups [20,21]:

- American Indians/Alaska Natives – males 27, females 9
- Asian Americans/Pacific Islanders – males 9, females 4
- Black Americans – males 10, females 2
- Hispanic Americans – males 10, females 3
- White Americans – males 26, females 8

Education — Fewer years of education may be associated with higher suicide rates. In the United States, the suicide rate in 2014 was approximately two times greater in males with a high school education than males with a college degree or more education (39 and 17 suicides per 100,000 individuals) [22]. A similar pattern was seen in females with a high school education and females with a college degree or more (10 and 6 suicides per 100,000 individuals).

RISK FACTORS

The subsections below describe factors that are associated with an increased risk of suicide. Identifying modifiable factors, as well as protective factors (see 'Protective factors' below), can guide treatment.

History of previous suicide attempts — It is estimated that there are 10 to 40 nonfatal suicide attempts for every completed suicide [23-25], and a prior history of attempted suicide is the strongest single factor predictive of suicide is [12]. A study of a community sample used medical records from 1986 to 2007 to identify 1490 individuals with a first lifetime suicide attempt reaching medical attention; more than 5 percent (n = 81) perished by suicide [26]. Of the 81, more than half (n = 48, 59 percent) died immediately from the index suicide attempt, and among the 33 individuals who survived the index attempt, 27 (82 percent) killed themselves within one year.

One of every 100 suicide attempt survivors will die by suicide within one year of their index attempt, a risk approximately 100 times that of the general population [27]. Following a suicide attempt, the risk for completed suicide is greatest in patients with schizophrenia, unipolar major depression, and bipolar disorder [28].

Psychiatric disorders — Psychiatric illness is a strong predictor of suicide [25,28]. More than 90 percent of patients who attempt suicide have a psychiatric disorder [24,29], and 95 percent of patients who successfully commit suicide have a psychiatric diagnosis [30].

Severity of psychiatric illness is associated with risk of suicide. As an example, a meta-analysis found that the lifetime risk of suicide is 8.6 percent in patients who have had a psychiatric inpatient admission involving suicidal ideation, 4 percent in patients who have had a psychiatric admission for an affective disorder without suicidality, 2.2 percent in psychiatric outpatients, and less than 0.5 percent in the general population [31]. Patients who have multiple psychiatric comorbidities appear to be at higher risk than those with uncomplicated depression or an anxiety disorder [32,33].

Suicide may be concentrated in the days and weeks following psychiatric inpatient hospitalization. In one systematic review, 41 percent of those who committed suicide had been psychiatric inpatients within the previous year, and as many as 9 percent of suicides occurred within one day of discharge from psychiatric inpatient care [34]. This last figure may have been inflated by including some patients who committed suicide during their inpatient stays.

The psychiatric disorders most commonly associated with suicide include depression, bipolar disorder, alcoholism or other substance abuse, schizophrenia [35], personality disorders, anxiety disorders including panic disorder, posttraumatic stress disorders, and delirium [36]. Among patients with depression, a history of suicide attempts correlated most strongly with feelings of worthlessness [37]. Concurrent personality disorder was also strongly correlated with suicide attempts in depressed patients.

Anxiety disorders more than double the risk of suicide attempts (odds ratio 2.2) [38], and a combination of depression and anxiety greatly increases the risk (odds ratio 17) [36]. Symptoms of psychosis (delusions, command auditory hallucinations, paranoia) may increase the risk regardless of the specific diagnosis.

Information about the association between other specific psychiatric disorders and suicide is discussed in separate topics, which include the following:

- (See "Unipolar depression in adults: Course of illness", section on 'Suicide'.)

- (See "Risky drinking and alcohol use disorder: Epidemiology, clinical features, adverse consequences, screening, and assessment", section on 'Mortality'.)
- (See "Borderline personality disorder: Epidemiology, pathogenesis, clinical features, course, assessment, and diagnosis".)
- (See "Risk factors, comorbidities, and consequences of insomnia in adults", section on 'Association with suicide'.)

Hopelessness — Across psychiatric disorders, hopelessness is associated with suicidal ideation and behavior. A meta-analysis of 166 longitudinal studies (sample size not reported) found that hopelessness was associated with an increased risk of ideation (odds ratio 2.2, 95% CI 1.6-3.0), attempt (odds ratio 2.0, 95% CI 1.6-2.4), and death (odds ratio 2.0, 95% CI 1.5-2.7) [39].

Marital status — Suicide occurs more often in people who are not married than those who are married. In a meta-analysis of 36 studies (n >100,000,000 individuals) that adjusted for various potential confounding factors, the risk of suicide was nearly two times greater in the nonmarried than the married (odds ratio 1.9, 95% CI 1.8-2.1) [40]. Subanalyses found that the elevated risk was roughly comparable for individuals who were single (odds ratio 2), divorced (odds ratio 3), or widowed (odds ratio 2), compared with married individuals. However, heterogeneity across studies for each of the meta-analyses was large. The authors hypothesized that marriage increases social integration and meaning within one's life.

Sexual preference — The risk of suicidal ideation and behavior is increased in sexual minorities. As an example, a meta-analysis of 46 studies (sample size not reported) found that the proportion of individuals who attempted suicide in the last 12 months was approximately two to three times greater bisexual, gay or lesbian, compared with straight people [41]:

- Bisexual people – 16 percent
- Gay or lesbian people – 11 percent
- Straight people – 6 percent

In addition, lifetime suicide attempts were roughly four times greater in sexual minorities than heterosexuals [41].

Occupation — Suicide may be greater in patients who serve in unskilled occupations than skilled occupations [42]. A meta-analysis of 34 studies (sample size not specified) found that the risk of suicide was greater among the least skilled workers (eg, laborers and office cleaners who perform simple manual tasks) than in the general working-age population (rate ratio 1.8, 95% CI 1.5-2.3) [43]. By contrast, the risk of suicide was lower in the most skilled workers (eg, general managers who solve complex problems) than in the general working-age population (rate ratio 0.7, 95% CI 0.5-0.9).

Physicians and nurses — The rate of suicide among physicians in the United States may be commensurate with that of the general population. However, nurses (especially females) may be at increased risk of suicide. A retrospective study of United States data from 2017 to 2018 included suicides in physicians (n = 221), nurses (n = 629), and the general population (n >40,000) [44]. In analyses that adjusted for sociodemographic factors, the findings included the following:

- Physicians – The incidence of suicide in physicians and the general population was comparable, as was the incidence in physicians and nurses.
- Nurses – Suicide occurred more often in nurses than the general population (relative risk 1.18, 95% CI 1.03-1.36).

In the same study, additional analyses that were stratified by sex found the following [44]:

- Males – The incidence of suicide among male physicians was comparable with that of the general male population and that of male nurses. Suicide in male nurses was also comparable to that of the general male population.
- Females – Suicide in female physicians and the general female population was comparable. However, the risk of suicide was greater in female nurses than female physicians (relative risk 1.7, 95% CI 1.2-2.4) and the general female population (relative risk 2.0, 95% CI 1.8-2.2).

Military service — In the United States, the rate of suicide in military veterans exceeds that of the general population. (See "Medical care of the returning veteran".)

General medical illnesses — Suicide risk increases with general medical illness, including asthma, cancer, chronic obstructive pulmonary disease, coronary artery disease, diabetes mellitus, spine disorders (eg, disc disorders), stroke, recent surgery, and chronic or terminal disease [45-48]. Body mass index and risk of suicide are inversely related in males [49]. Insomnia is also associated with an increased risk of suicidal thoughts and behavior. (See "Risk factors, comorbidities, and consequences of insomnia in adults", section on 'Association with suicide'.)

Chronic pain — Chronic pain is prevalent in people who die by suicide. A retrospective study of public surveillance data covering an 11-year period found that among suicide decedents (n >120,000), chronic pain was present in 9 percent; however, the prevalence is probably higher because the data were collected after death [50,51]. The most common types of pain associated with suicide were back pain, cancer pain, and/or arthritis. Among suicide decedents with

chronic pain, the most common means of death were firearms (54 percent) and opioid overdose (16 percent).

The lifetime prevalence of suicide attempts in individuals with chronic pain ranges between approximately 5 and 15 percent, and the prevalence of suicidal ideation is about 20 percent [52,53]. Reviews suggest that chronic nonmalignant pain, independent of other factors such as sociodemographics and physical and mental health status, doubles the risk of completed suicide. Risk factors for suicidal ideation and behavior in those with chronic pain include multiple pain conditions, severe pain, more frequent episodes of intermittent pain (eg, migraines), longer duration of pain (eg, >3 months), and sleep onset insomnia. Psychological processes relevant to suicidality in patients with chronic pain include helplessness and hopelessness about the pain, a desire to escape the pain, and problem-solving deficits [53].

Neurologic disorders — Neurologic disorders are associated with an increased risk of suicide [54].

Traumatic brain injury — Traumatic brain injury (TBI) is associated with completed suicide [55,56]. As an example, in a national registry study of patients who suffered a TBI (n >500,000) and individuals who did not (n >7,000,000), nearly 35,000 people died by suicide during 35 years of follow-up [57]. After adjusting for potential confounding factors (eg, sociodemographics, pre-TBI psychiatric illness, and pre-TBI deliberate self-harm), the analyses found that the incidence rate ratio (IRR) of suicide was approximately two times greater in patients with TBI than individuals without TBI, regardless of TBI severity:

- Any TBI – Incidence rate ratio 1.9, 95% CI 1.8-2.0
- Mild TBI (concussion) – Incidence rate ratio 1.8, 95% CI 1.7-1.9
- Skull fracture without documented TBI – Incidence rate ratio 2.0, 95% CI 1.7-2.3
- Severe TBI (evidence of structural brain injury) – Incidence rate ratio 2.4, 95% CI 2.2-2.6

The risk of suicide was greatest within the first six months of TBI, and the risk remained elevated for at least seven years compared with the control population [57]. In addition, the risk of suicide was greater in patients with two or more likely distinct TBI events, compared to patients with one TBI. Patients with post-TBI psychiatric disorder and patients with post-TBI nonfatal deliberate self-harm were at greater risk of suicide than were patients with TBI alone, which is consistent with results from other studies. (See 'Psychiatric disorders' above and 'History of previous suicide attempts' above.)

Childhood adversity — The risk of suicide attempts is two to four times greater in adults who suffered childhood abuse or other adverse childhood experiences (eg, physical neglect):

- A meta-analysis of five prospective observational studies (n >7000 subjects) found that suicide attempts were nearly twice as likely to occur in adults who suffered childhood sexual abuse, compared with adults who were not abused (odds ratio 1.8, 95% CI 1.4-2.3) [58].

- In a meta-analysis of 47 prospective and retrospective studies (n >151,000 subjects), suicide attempts were approximately twice as likely to occur in adults who suffered childhood sexual abuse, compared with adults who were not abused (odds ratio 1.9, 95% CI 1.7-2.1) [59]. In addition, subgroup analyses found that the increased risk of suicide attempts was approximately two-fold greater in clinical settings (odds ratio 2.1) and in population-based samples (odds ratio 1.9).

- A meta-analysis of seven prospective and retrospective studies with more than 14,000 individuals, including 6000 who were abused as children, found an increased risk of suicide attempts among the adults with a history of [60]:

  - Sexual abuse (odds ratio 4, 95% CI 3-5)
  - Physical abuse (odds ratio 4, 95% CI 2-7)
  - Emotional abuse (odds ratio 4, 95% CI 3-6)
  - Physical neglect (odds ratio 3, 95% CI 2-6)

Family history and genetics — The risk of suicide increases in patients with a family history of suicide [61,62]. As an example, a national registry study found that if one sibling died by suicide, the risk of remaining siblings doing so was increased both among females (odds ratio 3) and males (odds ratio 2) [63].

Twin studies suggest that the increased risk of suicide among patients with a family history of suicide has both environmental and genetic components [61,64]. The heritability of suicide is in the range of 30 to 50 percent [23]. However, it is not clear whether the genetic component is primarily responsible for the underlying psychiatric disorder or for the suicide itself. In one study, both a family history of completed suicide and psychiatric illness were risk factors for suicide, and the effect of family suicide history was independent of the family history of psychiatric illness [62]. Additionally, having an unrelated spouse who has a psychiatric disorder or who commits suicide increases the risk of suicide, showing the importance of environmental effects within the family structure [65].

Rural residence — The highest rates of suicide in the United States are found in rural areas. A study analyzed data from 2013 to 2015 in the United States and classified levels of urbanization as large metropolitan (≥1 million population), medium/small metropolitan (≥50,000 but <1 million population), or rural (<50,000 population) [15,66]. A gradient was observed in suicide

rates per 100,000 individuals according to level of urbanization, with the highest rate in rural areas:

- Large metropolitan – 13
- Medium/small metropolitan – 17
- Rural – 20

Firearms — Suicide in the United States most often involves firearms [15,67]. Among all suicides in the United States in 2016, firearms were used by 51 percent of decedents [1]. More than 20,000 firearm suicides occur each year in the United States, and estimates of the annual prevalence of firearm suicides range from 6 to 10 per 100,000 individuals [1,67].

As part of a safety plan (figure 1) for individuals who reside in homes with firearms and are at increased risk of suicidal behavior (eg, those with current suicidal ideation or depressive disorders, or a prior history of suicide attempt), we recommend either removing the firearms or restricting access by storing firearms locked, unloaded, and separate from ammunition [68-70]. Possession of guns can be voluntarily transferred on a temporary basis; however, the ease with which this can occur within the United States varies among states because of differences in firearm laws [71]. In addition, some states permit family members and law enforcement personnel to petition courts to order removal firearms, and other states allow police officers to confiscate guns prior to court approval [68]. Additional information about safety plans is discussed elsewhere in this topic. (See 'Safety plan' below.)

Evidence that supports limiting access to guns to reduce suicides includes the following:

- Multiple ecological and other observational studies suggest that restricting access to guns and reducing gun ownership can decrease the risk of firearm suicides [67,68,72]. As an example:
  - A meta-analysis of 10 observational studies (sample size not reported) found that the risk of completed suicide was three times greater among adults with access to firearms, compared with individuals without available firearms (odds ratio 3) [73].
  - In a subsequent, 12-year registry study of individuals who had never owned handguns (n >23 million), suicide by any method occurred more often in those who acquired handguns (n >600,000) than those who did not (hazard ratio 4) [74]. The elevated risk was attributable to more suicides by firearm in handgun owners than nonowners (hazard ratio 9), with the greatest risk during the first 30 days of handgun ownership (hazard ratio 100). Although the rate of firearm suicides in handgun owners progressively declined, more than 50 percent of all firearm suicides occurred after the

first year of handgun ownership, and the risk of suicide was greater among owners than nonowners throughout the 12-year follow-up.

- In addition, multiple studies have found that laws and regulations that restrict access to guns are associated with decreases in firearm suicides, without increases in suicide by alternative methods [67,68]. Thus, restricting access to firearms appears to decrease firearm suicides and overall suicides.

Restricting access to firearms may help decrease suicides because suicidal ideation is often transient, suicidal behavior is frequently impulsive, and firearms are more lethal than other suicide methods such as poisoning (overdoses) [67,75,76].

Federal and state laws in the United States permit clinicians to ask patients about ownership of firearms and to discuss gun safety [77], and courts have affirmed that such inquiries and discussions are permissible [69]. In addition, a nationally representative survey found that more than 50 percent of gun owners, as well as 66 percent of individuals who do not own guns, think it is at least sometimes appropriate for clinicians to discuss firearms [78]. Many firearm retailers and gun rights advocates are working with suicide prevention groups to reduce firearm suicides [79]. Counseling patients about gun safety is consistent with recommendations from multiple medical professional societies, including the American Psychiatric Association and the American Academy of Family Physicians [80].

Media reporting — Media reports of suicide deaths may be associated with a subsequent increase in suicides in the general population. A systematic review examined 31 studies of suicide deaths that occurred before and after media reports on suicide, utilizing mortality databases in 14 countries [81]. The median follow-up time from the media reports was 21 days. In separate meta-analyses, the primary findings were as follows:

- General reports of suicide were not associated with changes in suicide deaths.

- However, after reports of celebrity (eg, entertainer) suicides, the risk of suicide increased 13 percent.

- In addition, media reports of celebrity suicides that included the method (eg, hanging) were associated with a 30 percent increase in suicides by the same method.

Some experts recommend that media reports of suicide should follow existing guidelines for responsible reporting, which include avoiding sensationalism and the method used [81,82].

Antidepressants — The potential association of antidepressant therapy in adults with an increased risk of suicide is discussed separately. (See "Effect of antidepressants on suicide risk in

adults".)

Other — The risk of suicide increases in patients who live alone, have lost a loved one, or have experienced a failed relationship within one year [83]; and possibly in patients with a history of violent behavior in the previous year [84]. The anniversary of a significant relationship loss is also a time of increased risk [85]. Among those widowed, the risk of suicide is highest in the first week after bereavement, decreasing rapidly in the first months thereafter, but remaining elevated throughout the first year following the loss [86]. Homelessness, particularly in those with psychiatric disorders, increases the risk of suicide [87].

Sociopolitical, cultural, and economic forces can lead to increased suicide rates in populations [23,88]. Violence and political coercion are associated with increased rates of suicide, as are economic downturns [89,90], unemployment, and economic strain [91]. People who score lower on intelligence tests also appear to have a higher risk of suicide [92]. Advancing paternal age, which is associated with increased genetic mutations during spermatogenesis, may increase the risk of suicide attempts in one's offspring [93].

PROTECTIVE FACTORS

Social support and family connectedness is protective against suicide, while family discord increases the risk of suicide [23]. As an example, a study of nationally representative samples found that after controlling for several potential confounding factors, social support was associated with a decreased risk of suicide in the United States (odds ratio 0.7) and in England (odds ratio 0.9) [94]. Pregnancy decreases the risk of suicide, as does parenthood [95], particularly for mothers. Religiosity and participating in religious activities is associated with a lower risk of suicide [96].

ASSOCIATION WITH VIOLENT CRIMINALITY

Deliberate self-harm in young adults may be associated with an increased risk of aggression toward others. A national registry study identified a cohort of individuals aged 15 to 32 years (n >1,850,000), which included patients who were treated for deliberate self-harm (n >50,000), and examined the association between nonfatal self-harm and subsequent conviction for a violent crime [97]. The mean follow-up period was eight years; violent crimes included homicide, assault, robbery, and threats. After controlling for potential confounding factors (age, psychiatric disorder, and socioeconomic status), the analyses found that conviction of a violent crime occurred twice as often in patients treated for self-harm, compared with the general

population (hazard ratio 2.2, 95% CI 2.1-2.2). In addition, the rate among males and females with self-harm was similar (hazard ratio approximately 2).

PATIENT EVALUATION

The purpose of a suicide risk assessment is to review risk and protective factors with a focus on identifying modifiable targets for intervention [98,99].

Clinicians may worry that asking about suicide will initiate suicidal thoughts or actions, but there are no data to support this concern. By contrast, many patients appreciate the opportunity to discuss suicidal thoughts, and may not verbalize these issues without being prompted. Sometimes the only clue to a suicidal patient is the initiation of an office visit. A review of 13 studies reported that none found a significant increase in suicidal ideation among participants asked about suicidal thoughts [100].

The observation that patients who subsequently commit suicide have often recently visited primary care clinicians has been interpreted as reflecting help-seeking behavior. However, clinicians may be unaware of their patient's intent. As an example, in one study of depressed suicide victims, 59 percent who were treated in a psychiatric setting had communicated their intent compared with only 19 percent cared for in a medical setting [101]. While patients may be reluctant to communicate their intent to commit suicide, patients with suicidal ideation will generally tell their clinicians about such thoughts when asked [102].

The evaluation of a patient who may be suicidal includes an assessment of ideation, method, plan, and intent. Unfortunately, our ability to predict who will attempt suicide is limited; patients who die by suicide are similar to those who do not [103]. As an example, one study of 4800 psychiatric inpatients who were evaluated using the risk factors (see 'Risk factors' above) found that trying to identify particular people who would or would not die by suicide was not feasible because of the low sensitivity and specificity of available identification procedures [104]. Similarly, among patients who have presented to an emergency department after an episode of self-harm, assessments by psychiatrists and emergency department staff have low sensitivity and specificity for predicting who will repeat self-harm [105].

A number of standardized scales have been proposed to evaluate suicide risk, but none is associated with a high predictive value [106]. Depression rating scales are commonly used, but these are better measures of depression severity than suicide risk. As an example, a study evaluated responses to item number nine from the Patient Health Questionnaire – Nine Item (PHQ-9) (table 1) (“Over the last two weeks, how often have you been bothered by thoughts

you would be better off dead or of hurting yourself in some way?"), and found that the cumulative risk of suicide over one year among outpatients who answered "nearly every day" was 4 percent [107]. In cardiac inpatients with current emotional distress (n = 366), a positive response to item nine was endorsed by 21 percent, but a detailed suicide evaluation found that suicidal plans or intent were present in only 3 percent [108]. Other studies also suggest that item nine is an insufficient assessment tool [109].

Another option for identifying patients at high risk of suicide is the Beck Hopelessness Scale, which is a 20-item true/false questionnaire that correlates more closely with current suicide attempt than depression severity. However, a meta-analysis found that the low specificity of the scale limits its applicability [110].

Suicidal ideation and behavior — The first step in evaluating suicide risk is to determine the presence of suicidal ideation (thoughts), including their content and duration. The questioning should determine whether the patient has active or passive suicidal ideation:

- Active suicidal ideation – Thoughts of taking action to kill oneself. As an example, "I want to kill myself" or "I want to end my life and die."
- Passive suicidal ideation – The wish or hope that death will overtake oneself. As an example, "I would be better off dead," "My family would be better off if I was dead," or "I hope I go to sleep and never wake up."

If suicidal ideation is present, the clinician should ask if the thoughts are new and about changes in what may be chronic thoughts (eg, increased intensity or frequency), and if or how the patient has been controlling these thoughts. Other inquiries include the patient's expectations about death (including thoughts of reuniting with lost significant others), thoughts of evoking punishment of others, the need to escape a painful physical or psychological situation, or thoughts of harming others first before harming him or herself.

The presence of a suicide plan and the degree of intent to kill oneself can be elicited by asking about the following:

- Has a specific plan been formulated or implemented, including a specific method, place, and time? What is the anticipated outcome of the plan?
- Are the means of committing suicide available or readily accessible? Does the patient know how to use these means?
- What is the lethality of the plan? What is the patient's conception of lethality versus the objective lethality?

- What is the likelihood of rescue?
- Have any preparations been made (eg, gathering pills, changing wills, suicide notes) or how close has the patient come to completing the plan? Has the patient practiced the suicidal act or has an actual attempt already been made?
- What is the strength of the intent to carry out suicidal thoughts and plans?
- Is there a history of impulsive behaviors or substance use that might increase impulsivity? What is the ability to control impulsivity?
- What is the accessibility of support systems and recent stressors that may threaten the patient's ability to cope with difficulties and ability to participate in treatment planning?

Past history — Clinicians should ask about a past history of suicidal ideation and behavior.

Family history — Clinicians should ask about a family history of suicidal ideation and behavior.

Contracting for safety — As part of assessing suicidal ideation, as well as supporting the patient's ability to avoid suicidal behavior, clinicians often ask if the patient can "contract for safety" or agree to a "no harm contract" [111]. The phrases imply that patients can promise clinicians that they will try not to harm themselves when they have suicidal thoughts and will seek help if necessary. The terms are not defined or used consistently, and clinicians generally do not receive formal training in suicide prevention contracts [112]. Despite their wide use, there is little evidence that such contracts actually reduce suicide [23]. Contracting for safety may thus provide a false sense of security. Better tools include open dialogue between patients and clinicians to establish a therapeutic alliance, as well as ongoing assessments of suicide risk over time.

Other factors to evaluate — Clinicians should assess other factors related to suicidal ideation and behavior [98,113]:

- Hopelessness and view of the future
- Helplessness and sense of control
- Worthlessness
- Current life stressors, such as conflicts at home or work, and coping capacity
- History of aggressive behavior directed at others
- History of psychiatric disorders, including:
    - Anxiety disorder

- Bipolar disorder
- Personality disorders (eg, borderline personality disorder)
- Posttraumatic stress disorder
- Psychotic disorders (eg, schizophrenia)
- Substance use disorders
- Unipolar major depression

- History of general medical conditions
- Chronic pain

In addition, observe whether the patient is disconnected, disengaged, or shows a lack of rapport during the clinical interview, because these clinical signs are associated with an increased risk of suicide.

Screening — We recommend not routinely screening for suicidal ideation in adult primary care patients, based upon the lack of evidence that screening reduces suicide attempts or mortality. A systematic review for the United States Preventive Services Task Force (USPSTF) concluded that the evidence is insufficient to determine whether the benefits of screening for suicide risk outweigh the harms in the general population of United States adults (including pregnant and postpartum persons and adults 65 years or older); however, this conclusion did **not** apply to individuals with existing psychiatric disorders or past histories of suicide attempts [114,115]. The USPSTF clinical practice guideline that addresses screening for suicide risk, as well as other USPSTF guidelines, can be accessed through the USPSTF website.

Similarly, the Canadian Task Force on Preventive Health Care found poor evidence to recommend for or against routine evaluation of suicide risk even in individuals at high risk for suicide, but nevertheless recommends screening of high-risk individuals given the high burden of suffering [116].

For clinicians who want to further evaluate suicidal ideation and behavior in patients with mental disorders or past histories of suicide attempts, we suggest complementing the clinical assessment with the structured, interviewer administered Columbia-Suicide Severity Rating Scale [117]. This scale is the preferred instrument (“gold standard”) for assessing suicidality in clinical trials that fall under the authority of the United States Food and Drug Administration. A structured instrument can enable the interviewer to clarify ambiguous or contradictory responses; however, these instruments are labor intensive and seldom used in routine clinical practice. Rather, they are generally reserved for specialized evaluation, treatment, or research settings.

MANAGEMENT

Management of the suicidal individual should include:

- Medical stabilization
- Reducing immediate risk and treatment planning
- Managing underlying factors and psychiatric disorders
- Monitoring and follow-up

Medical stabilization — The first priority for patients who have attempted suicide is medical stabilization at a hospital. The appropriate surgical service should be contacted for management of trauma. Patients whose attempt involved drug ingestion should undergo decontamination and receive antidotes as indicated. (See "Initial management of trauma in adults" and "General approach to drug poisoning in adults" and "Initial management of the critically ill adult with an unknown overdose".)

Level of care and reducing immediate risk — Options for level of care typically include (algorithm 2) [98]:

- Inpatient hospitalization
- Partial hospital (day program)
- Intensive outpatient program (eg, three days/week for three hours/day)
- Outpatient

Inpatient hospitalization — Psychiatric inpatient hospitalization for further evaluation and initiation of therapy is nearly always indicated for patients with recent suicidal behavior (eg, suicide attempt) or imminent high risk of suicide (eg, patients with moderate to severe suicidal ideation that includes a plan and intent) [98].

Factors that can place patients at high risk of suicide include:

- Suicide attempt with a highly lethal method (eg, firearm or hanging)
- Suicide attempt that included steps to avoid detection
- Ongoing suicidal ideation or disappointment that the suicide attempt was not successful
- Inability to openly and honestly discuss the suicide attempt and what precipitated it
- Inability to discuss safety planning (see 'Safety plan' below)

- Lack of alternatives for adequate monitoring and treatment
- Psychiatric disorders underlying the suicidal ideation and behavior:
  - Anxiety disorders
  - Bipolar disorder
  - Personality disorders (eg, borderline personality disorder)
  - Posttraumatic stress disorder
  - Psychotic disorders (eg, schizophrenia)
  - Substance use disorders
- Agitation
- Impulsivity
- Severe hopelessness
- Poor social support

While awaiting psychiatric inpatient hospitalization, patients should be kept in a room with all sources of potential harm removed and a staff member should be assigned to provide constant observation. The patient's belongings should be stored separately or searched for potential methods for self-harm. Cooperative family members may be present if the patient desires. Security staff may be necessary to detain patients who insist on leaving. Transfer of the patient should take place by ambulance, and the paramedics must be aware of the suicide risk. Efforts should be made to inform the patient's outpatient primary care and mental health clinicians about the impending hospitalization. Inpatient treatment should continue until the patient’s safety has stabilized.

Involuntary hospitalization — If patients do not agree with plans for hospitalization, involuntary hospitalization may be necessary [98]. The process for admitting patients who will not or cannot sign themselves into a hospital vary among countries and from state to state in the United States. Most states require clinicians to certify that the patient is a danger to self or others, or is at imminent risk to come to harm because of an inability to adequately care for oneself.

In the United States, patients who are admitted against their will, or the will of their guardians, maintain the autonomy to consent for treatment. The only medications that can be administered without their consent, or the consent of their guardians, are those that are necessary for stabilization during a behavioral crisis. If daily medications are deemed necessary

for treatment of underlying psychiatric disorders, clinicians will need to obtain court ordered treatment.

Partial hospital and outpatient care — Patients in whom the risk of suicide is elevated but not imminent (eg, those with depression or alcohol abuse who express a desire to commit suicide but who do not have a specific plan or intent) need aggressive treatment that generally can be administered in a partial hospital (day program) or in an outpatient clinic. Outpatient therapy is contingent upon a safety plan (figure 1). (See 'Safety plan' below.)

Useful interventions include [98]:

- Involving family members or people close to the patient to regularly monitor the patient until safety has further stabilized.
  - Provide patients and caregivers 24 hour access to clinical support in case of urgent need.
  - Instruct family members that if the patient decompensates, the patient must return to the emergency department; if the patient refuses, the police should be summoned.
  - Although patients may object to clinicians reaching out to other people for additional history or help in mitigating the risk of suicide, we maintain that safety trumps confidentiality. In addition, patient reluctance regarding clinical contact with family members is a therapeutic issue that should be assessed. (See "Unipolar depression in adults: Family and couples therapy", section on 'Assessment'.)
- Restricting access to all lethal means of suicide, particularly firearms and medications – Ask about the availability of firearms and medications, and make them temporarily inaccessible to the patient with the help of family members and the police. (See 'Firearms' above.)
- Communicating a commitment to help, and scheduling enough clinical contact such that the patient feels connected and supported.
- Identifying and avoiding triggers for relapse of suicidal ideation and warning signs.
- Educating patients and caregivers about the disinhibiting effects of alcohol and other drugs.
- Specifying coping strategies and healthy activities to manage or distract oneself from suicidal thoughts.

- Treating psychiatric disorders aggressively. (See 'Underlying factors and mental disorders' below.)

Safety plan — As part of supporting the patient's ability to avoid suicidal behavior, clinicians should discuss a safety plan that specifies how patients can cope with recurrent suicidal urges in the future (figure 1). The safety plan is a widely used therapeutic tool. In addition, the extent to which patients can commit to stay safe and use the safety plan provides additional information about their risk for suicidal behavior, which aids the patient evaluation. (See 'Patient evaluation' above.)

Patients who agree to adhere to a safety plan may still be at high risk; this agreement does not protect patients or clinicians, and is not a substitute for thorough evaluation, sound clinical judgment, and meaningful therapeutic interaction, particularly with impulsive patients.

Underlying factors and mental disorders — Once immediate safety has been ensured, clinicians should address underlying factors, including precipitating events, ongoing life difficulties, and mental disorders.

Precipitating events include the death of a loved one, loss of a job, breakup of a marriage, school or social failure, sexual identity crisis, or trauma. In addition, people may attempt suicide as an alternative to intolerable life circumstances, such as abusive relationships, occupational stresses, and chronic isolation (see 'Risk factors' above). Referral for treatment is indicated, and engagement of community, religious, and family supports may also be helpful.

Primary care clinicians should ensure that patients receive appropriate psychiatric treatment, including medications and psychotherapy. Patients discharged from inpatient psychiatric care are at high short-term risk, particularly if there is a break in the continuity of care. (See 'Monitoring and follow-up' below.)

Pharmacotherapy — For patients with unipolar major depression or bipolar disorder, randomized trials indicate that maintenance treatment with lithium can prevent suicide. A meta-analysis of four trials (485 patients with either unipolar depressive disorders or bipolar disorder) compared lithium with placebo for continuation and maintenance treatment that ranged from 20 to 104 weeks; most patients had initially responded to acute treatment with open label lithium [118]. Lithium was prescribed either as monotherapy or as augmentation with pharmacotherapy (eg, antidepressants) and/or psychotherapy, and target serum lithium concentrations ranged from 0.5 to 1.0 mEq/L [0.5 to 1.0 mmol/L]. The findings included the following:

- Lithium was more effective than placebo in reducing the risk of suicide (six suicides occurred, all in patients who received placebo; odds ratio 0.13, 95% CI 0.03-0.66).

- In the subgroup of patients with unipolar depressive disorders (three trials, 280 patients), the number of suicides was less with lithium than placebo (five suicides occurred in patients treated with placebo; odds ratio 0.13, 95% CI 0.02-0.76).

- In the subgroup of patients with bipolar disorder (one trial, 205 patients), the risk of suicide in patients treated with lithium or placebo was comparable. However, only one suicide occurred (in a patient who received placebo), which was too few events to detect a difference.

A prior meta-analysis also found that maintenance treatment with lithium was beneficial for preventing suicide in patients with mood disorders [119]. The analysis (seven randomized trials, 1104 patients, duration of treatment 76 to 128 weeks) compared lithium with other compounds (amitriptyline, carbamazepine, lamotrigine, or placebo). Suicide occurred in fewer patients treated with lithium than other compounds (2 versus 11 patients; odds ratio 0.3, 95% CI 0.1-0.8). In addition, all-cause mortality was also less likely with lithium than other compounds.

Although it is not known how lithium reduces the risk of suicide, lithium can prevent recurrence of mood episodes, and may also reduce aggression or impulsivity [118,120]. The efficacy of lithium in forestalling mood episodes is discussed separately. (See "Unipolar depression in adults: Treatment with lithium", section on 'Lithium monotherapy as maintenance treatment' and "Bipolar disorder in adults: Choosing maintenance treatment", section on 'Lithium'.)

Lithium toxicity and overdose can damage organs and may be lethal. (See "Bipolar disorder in adults and lithium: Pharmacology, administration, and management of adverse effects", section on 'Managing lithium adverse effects' and "Renal toxicity of lithium" and "Lithium and the thyroid" and "Lithium poisoning".)

Patients with acute unipolar major depression who manifest suicidal ideation or behavior are generally treated with antidepressants; low quality evidence suggests that antidepressants may possibly decrease suicides [23,121,122]. As an example, a retrospective registry study found that a doubling of selective serotonin reuptake inhibitor (SSRI) prescriptions was associated with a 25 percent reduction in suicides [123]. Nevertheless, the data supporting the use of antidepressants appear to be less compelling than the evidence for lithium. A meta-analysis of three small, randomized trials compared antidepressants (mianserin, nomifensine, or paroxetine) with placebo in 243 patients who were hospitalized after suicide attempts; duration of treatment ranged from 12 weeks to 12 months [124]. Repetition of self-harm was comparable for the two groups. Evidence supporting the use of antidepressants for unipolar

major depression is discussed separately, as is the issue of antidepressants and warnings about increased suicidal ideation and behavior. (See "Unipolar major depression in adults: Choosing initial treatment" and "Effect of antidepressants on suicide risk in adults".)

Tricyclic antidepressants and monoamine oxidase inhibitors may be lethal if taken in high doses; they should be avoided if possible in the depressed patient who has expressed thoughts of suicide [125]. In addition, the serotonin norepinephrine reuptake inhibitor venlafaxine may be dangerous in overdose and should probably be avoided. By contrast, the SSRIs appear to be safer when taken in overdose and should be the drugs of choice in potentially suicidal depressed patients [126]. (See "Tricyclic antidepressant poisoning" and "Acute poisoning from atypical (non-SSRI) antidepressants, including serotonin modulators and serotonin-norepinephrine reuptake inhibitors (SNRIs)", section on 'Venlafaxine' and "Selective serotonin reuptake inhibitor poisoning".)

However, many depressed patients do not respond to initial treatment with an SSRI, and may require pharmacotherapy that includes venlafaxine, tricyclics, or monoamine oxidase inhibitors. Patients with suicidal ideation who are at risk of overdosing on any medication may need to be hospitalized.

Ketamine and esketamine have been studied as treatment for acute suicidal ideation:

- Ketamine is a standard anesthetic drug that is a racemic mixture of two enantiomers: S-ketamine (esketamine) and R-ketamine. Randomized trials indicate that a single infusion of ketamine can mitigate suicidal ideation within one hour, with benefits persisting for up to one week.

- Intranasal esketamine, in conjunction with an oral antidepressant, is approved by the US Food and Drug Administration for treating depressive symptoms in adults with unipolar major depression that includes acute suicidal ideation or behavior [127]. Although the parent molecule ketamine has demonstrated efficacy for alleviating suicidal ideation, no high-quality studies have demonstrated that esketamine prevents suicide or suicidal behavior, and the evidence that esketamine can improve suicidal ideation is limited. If suicidal ideation improves after an initial dose of esketamine, patients should nevertheless be assessed to decide whether hospitalization is clinically warranted. After four weeks of treatment with esketamine, its benefit should be evaluated to determine the need for ongoing treatment.

Information about using esketamine and ketamine for suicidality is discussed separately. (See "Ketamine and esketamine for treating unipolar depression in adults: Administration, efficacy,

and adverse effects" and "Unipolar depression in adults: Choosing treatment for resistant depression".)

Pharmacotherapy for underlying psychiatric disorders in suicidal patients is often nonexistent or inadequate (eg, doses below the therapeutic minimum). Psychologic autopsy studies have found that among all patients who commit suicide, only 8 to 17 percent received any psychiatric medications; among depressed suicide victims, only 6 to 14 percent were adequately treated [23].

Investigational approaches — Buprenorphine, which is used for opioid use disorder and is potentially addictive and possibly lethal, is another experimental treatment for severe suicidal ideation. A four-week randomized trial compared adjunctive, low dose buprenorphine (mean dose 0.4 mg/day) with placebo in patients (n = 62) with severe suicidal ideation [128]. Patients carried various diagnoses, such as borderline personality disorder, unipolar major depression, and/or adjustment disorder, and were treated with a variety of medications (eg, antidepressants and/or benzodiazepines). Improvement of suicidal ideation was greater with buprenorphine and was independent of treatment with antidepressants. Adverse effects were also more common with buprenorphine than placebo, including fatigue, nausea, dry mouth, and constipation; however, discontinuation of treatment due to side effects was comparable for the two groups. The study medication was abruptly stopped after four weeks; at the follow-up appointment one week later, all of the patients denied withdrawal symptoms and no exacerbation of suicidal ideation was reported.

Psychotherapy — After a suicide attempt, psychotherapy may prevent subsequent attempts. As an example, a national registry study identified patients who attempted suicide and subsequently received either psychotherapy (n >5000) or standard care (n >17,000) [129]. Propensity scoring was used to match the two groups with regard to 31 potential confounders (eg, sex, psychiatric diagnoses, and prior deliberate self-harm). Psychotherapy consisted of 8 to 10 individual sessions focused upon suicide prevention, but was otherwise not standardized; different approaches were used, including cognitive-behavioral therapy (CBT), problem solving therapy, dialectical behavior therapy, or psychodynamic psychotherapy. During 20 years of follow-up, suicide deaths occurred in fewer patients who received psychotherapy than standard care (1.6 versus 2.2 percent). All-cause mortality was also lower in patients who received psychotherapy than standard care (6.9 versus 9.6 percent).

Among psychotherapies, we prefer CBT or problem solving therapy, based upon randomized trials. As an example, a meta-analysis of 10 trials compared CBT or problem solving therapy with usual care in patients (n >2200) with an episode of self-harm, who were followed for up to 12 months [130]. Self-harm included any nonfatal act of self-injury, regardless of suicidal intent.

Repetition of self-harm was less likely to occur with CBT/problem solving therapy than usual care (odds ratio 0.80, 95% CI 0.65-0.98). In addition, improvement of depression, including hopelessness and suicidal ideation, was greater with active treatment.

Self-harm includes both nonsuicidal self-injury and suicide attempts, which differ in multiple ways, including frequency; nonsuicidal self-injury may occur daily, whereas suicide attempts occur less frequently [131]. Multiple studies indicate that CBT can specifically reduce suicide attempts; however, CBT does not seem to reduce suicide. As an example, in a systematic review of randomized trials that examined the use of CBT in patients at risk for suicide, the primary findings included the following [132]:

- A meta-analysis of 10 randomized trials compared CBT with usual care in patients (n >1200) who attempted suicide within six months of study entry. CBT reduced the risk of subsequent suicide attempts by 50 percent, compared with usual care (relative risk 0.5, 95% CI 0.3-0.7).

- Other meta-analyses found that suicidal ideation and hopelessness improved more with CBT than usual care.

- Subsequent suicides were comparable with CBT and usual care. However, it is more difficult to demonstrate that an intervention can reduce suicides because they occur less frequently than suicide attempts.

If CBT or problem solving therapy are not available, it is reasonable to use other types of other psychotherapies. As an example, a meta-analysis of three randomized trials compared dialectical behavior therapy with usual care in patients (n = 292) with an episode of self-harm, and found that the frequency of self-harm decreased more with dialectical behavior therapy [130].

Electroconvulsive therapy — For severely depressed suicidal patients, electroconvulsive therapy frequently provides a rapid response that may be lifesaving in the short term, and perhaps in the long term as well. (See "Unipolar major depression in adults: Indications for and efficacy of electroconvulsive therapy (ECT)", section on 'Suicidality' and "Overview of electroconvulsive therapy (ECT) for adults", section on 'Continuation and maintenance ECT'.)

Adjunctive interventions — Adjunctive interventions that address social isolation, and provide a bridge between an emergency department visit and outpatient care, may help reduce suicide attempts. As an example, a prospective observational study compared the benefit of usual care alone (n = 497); universal screening for suicidal ideation or behavior plus usual care (n = 377); and universal screening, usual care, plus an adjunctive intervention (n = 502) in

patients who presented to an emergency department and confirmed the presence of active suicidal ideation or a suicide attempt in the past week [133]. The intervention included formulating a self-administered safety plan during the emergency department visit and seven subsequent telephone calls (each lasting 10 to 20 minutes) focused upon coping with risk factors, personal goals, safety planning, and treatment adherence. Patients were followed for up to one year, during which the risk of suicide attempts was less in patients who received the adjunctive intervention, compared with usual care alone (hazard ratio 0.73, 95% CI 0.55-0.97). By contrast, the number of suicide attempts was similar for universal screening plus usual care compared with usual care alone. Another intervention with demonstrated success for postcrisis suicide prevention includes periodically sending letters or postcards to patients [134,135].

However, digital supplements to usual care appear to be ineffective for managing suicidal ideation and may be harmful. A study enrolled patients (n >18,000) who were receiving usual care for frequent suicidal thoughts, and randomly assigned them to add-on care management, add-on dialectical behavior therapy skills training, or usual care alone [136]. Care management included assessments of suicide risk and motivational enhancement to promote recommended care. Skills training included video instruction in mindfulness, emotional awareness, and paced breathing. The adjunctive interventions were administered online through the electronic health record portal messaging system. Within 18 months of randomization, the rate of fatal or nonfatal self-harm with care management and with usual care alone were comparable (3.3 and 3.1 percent of patients). However, self-harm occurred in more patients with add-on, digital skills training than usual care alone (3.9 versus 3.1 percent).

Monitoring and follow-up — Patients at risk of suicide should be followed regularly as warranted by the level of risk, bearing in mind that risk fluctuates, particularly if the patient's situation changes. As part of monitoring previously suicidal patients, the clinician should determine if there have been changes, especially a reemergence of precipitating events, adverse life circumstances, or mental disorders. Following acute management of suicidal ideation and behavior, the primary care clinician should assure that patients are actively engaged in ongoing care for any mental disorders and that they receive maintenance treatment to prevent or forestall recurrent episodes of unipolar depression, bipolar disorder, anxiety disorders, psychotic disorders, and substance use disorders.

The risk of suicide is increased in the days and initial weeks following discharge from psychiatric hospitalization, particularly if patients perceive that they have lost a therapeutic support system, including contact with a mental health professional. The risk is particularly high in the first week after discharge [137], and more than one-third of all suicides in the first year following hospital discharge occur in the first month [138].

Scheduling the first follow-up visit soon after a psychiatric hospitalization may reduce suicide rates. An observational study found that implementing a policy to follow-up patients within seven days of discharge was associated with a decreased rate of suicide during the three months after discharge (from 2.5 to 2.0 suicides per 10,000 discharged patients) [139].

Patients are also at high risk for nonadherence to pharmacotherapy soon after discharge, and thus have a consequent increased risk of suicide. By contrast, those who continue care in the community and who maintain pharmacotherapy are at lower risk [140]. In addition, an observational study found that assertive community outreach to patients who are nonadherent with medications or appointments was associated with decreased suicide rates [139]. Nonadherence may be due to adverse effects, lack of symptom relief, not understanding the purpose of medications, or failure to appreciate the consequences.

POSTSUICIDE INTERVENTION

Postsuicide interventions are intended to help family, friends, and coworkers understand why suicide victims killed themselves, and decrease the assumption of inappropriate guilt for the death [141]. The intervention is often designed to identify those at risk of suicide, as well as prevent posttraumatic stress disorder, complicated grief, and depressive syndromes.

However, there is little evidence that postsuicide interventions are beneficial. As an example, a randomized trial compared psychoeducation (four sessions, each lasting two hours, administered during home visits) with no intervention in 83 individuals bereaved through suicide; improvement of depressive symptoms (including suicidal ideation) and complicated grief symptoms in the two groups was comparable [142]. Nevertheless, monitoring for posttraumatic stress disorder, complicated grief, depression, and suicide risk factors may be beneficial.

Information about managing grief and bereavement is discussed separately. (See "Bereavement and grief in adults: Management".)

SOCIETY GUIDELINE LINKS

Links to society and government-sponsored guidelines from selected countries and regions around the world are provided separately. (See "Society guideline links: Depressive disorders".)

SUMMARY AND RECOMMENDATIONS

- **Terminology** – Intentional self-injurious thoughts and behavior may be suicidal or nonsuicidal (algorithm 1). (See 'Terminology' above.)

- **Prevalence** – The global suicide rate is 12 per 100,000 individuals, making suicide the 14th leading cause of global mortality. The suicide rate in the United States is more than 15 per 100,000 individuals, making suicide the 10th leading cause of death. (See 'Suicide' above.)

- **Risk factors** – Major risk factors for suicide include prior suicide attempts or threats, psychiatric disorders, and hopelessness. High impulsivity and alcohol or other substance abuse increases the risk that suicidal urges will be carried out. Most suicides in the United States involve firearms. (See 'Risk factors' above.)

- **Antidepressants and suicide risk** – Although concerns have been raised that antidepressants are associated with an increased risk of suicide, the potential risk of antidepressant-related suicidal ideation and behavior must be weighed against the benefits of treatment and the long-term risk of suicide in untreated depression. (See "Effect of antidepressants on suicide risk in adults".)

- **Assessment** – Patients suspected to be at risk for suicide should be asked about suicidal ideation and intent, and, if present, the lethality of the plan should be evaluated. The evaluation should include discussion of a safety plan (figure 1). (See 'Patient evaluation' above.)

- **Initial management** – Patients at risk for suicide require psychiatric services and monitoring to ensure safety. The level of care is determined by the evaluation; options typically include inpatient hospitalization, partial hospital, intensive outpatient program, and outpatient clinic (algorithm 2). (See 'Management' above and 'Level of care and reducing immediate risk' above.)

- **Address underlying factors** – After immediate safety has been ensured, underlying factors such as psychiatric disorders, precipitating events, and ongoing life circumstances should be addressed with medications, psychotherapy, and involvement of friends, family, and religious/community groups as appropriate. (See 'Underlying factors and mental disorders' above.)

- **Specific treatments**

  - **Patients with acute unipolar major depression** – For patients who initially present with acute unipolar major depression that includes suicidal ideation or behavior, we suggest either an antidepressant drug as monotherapy or an antidepressant plus

esketamine, rather than other treatment regimens (**Grade 2C**). (See 'Pharmacotherapy' above.)

- **Patients treated acutely with** lithium – For patients with bipolar and unipolar depressive disorders who remain at risk for suicide following immediate and short-term stabilization with treatment that includes lithium, we suggest continuation and maintenance treatment with lithium as monotherapy or as adjunctive treatment with other medications and/or psychotherapy, rather than discontinuing lithium (**Grade 2B**). (See 'Pharmacotherapy' above.)

- **Patients who attempted suicide** – After a suicide attempt, psychotherapy (eg, cognitive-behavioral therapy) may prevent subsequent attempts. (See 'Psychotherapy' above.)

- **Monitoring and follow-up** – Patients with a history of suicidal ideation and behavior are at increased risk for suicide soon after discharge from psychiatric inpatient care, and should be monitored closely in follow-up and assessed for the recurrence of symptoms or risk factors. (See 'Monitoring and follow-up' above.)

- **Postsuicide intervention** – After a suicide, friends, family, and coworkers may be at increased risk for suicide and for posttraumatic stress disorder and depression, and may benefit from monitoring for appropriate grieving. However, there is little evidence that postsuicide interventions are beneficial. (See 'Postsuicide intervention' above.)

Topic 1708 Version 67.0

→