PRACTICE GUIDELINE FOR THE
Assessment and Treatment of Patients With Suicidal Behaviors

WORK GROUP ON SUICIDAL BEHAVIORS

Douglas G. Jacobs, M.D., Chair

Ross J. Baldessarini, M.D.
Yeates Conwell, M.D.
Jan A. Fawcett, M.D.
Leslie Horton, M.D., Ph.D.
Herbert Meltzer, M.D.
Cynthia R. Pfeffer, M.D.
Robert I. Simon, M.D.

Originally published in November 2003. A guideline watch, summarizing significant developments in the scientific literature since publication of this guideline, may be available in the Psychiatric Practice section of the APA web site at www.psych.org.

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Claudia Hart, *Director, Department of Quality Improvement and Psychiatric Services*
Darrel A. Regier, M.D., M.P.H., *Director, Division of Research*

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STATEMENT OF INTENT

The American Psychiatric Association (APA) Practice Guidelines are not intended to be construed or to serve as a standard of medical care. Standards of medical care are determined on the basis of all clinical data available for an individual patient and are subject to change as scientific knowledge and technology advance and practice patterns evolve. These parameters of practice should be considered guidelines only. Adherence to them will not ensure a successful outcome for every individual, nor should they be interpreted as including all proper methods of care or excluding other acceptable methods of care aimed at the same results. The ultimate judgment regarding a particular clinical procedure or treatment plan must be made by the psychiatrist in light of the clinical data presented by the patient and the diagnostic and treatment options available.

This practice guideline has been developed by psychiatrists who are in active clinical practice. In addition, some contributors are primarily involved in research or other academic endeavors. It is possible that through such activities some contributors, including work group members and reviewers, have received income related to treatments discussed in this guideline. A number of mechanisms are in place to minimize the potential for producing biased recommendations due to conflicts of interest. Work group members are selected on the basis of their expertise and integrity. Any work group member or reviewer who has a potential conflict of interest that may bias (or appear to bias) his or her work is asked to disclose this to the Steering Committee on Practice Guidelines and the work group. Iterative guideline drafts are reviewed by the Steering Committee, other experts, allied organizations, APA members, and the APA Assembly and Board of Trustees; substantial revisions address or integrate the comments of these multiple reviewers. The development of the APA practice guidelines is not financially supported by any commercial organization.

More detail about mechanisms in place to minimize bias is provided in a document available from the APA Department of Quality Improvement and Psychiatric Services, "APA Guideline Development Process."

This practice guideline was approved in June 2003 and published in November 2003.

GUIDE TO USING THIS PRACTICE GUIDELINE

Practice Guideline for the Assessment and Treatment of Patients With Suicidal Behaviors consists of three parts (Parts A, B, and C) and many sections, not all of which will be equally useful for all readers. The following guide is designed to help readers find the sections that will be most useful to them.

Part A, "Assessment, Treatment, and Risk Management Recommendations," is published as a supplement to the *American Journal of Psychiatry* and contains the general and specific recommendations for the assessment and treatment of patients with suicidal behaviors. Section I summarizes the key recommendations of the guideline and codes each recommendation according to the degree of clinical confidence with which the recommendation is made. Section II discusses the assessment of the patient, including a consideration of factors influencing suicide risk. Section III discusses psychiatric management, Section IV discusses specific treatment modalities, and Section V addresses documentation and risk management issues.

Part B, "Background Information and Review of Available Evidence," and Part C, "Future Research Needs," are not included in the *American Journal of Psychiatry* supplement but are provided with Part A in the complete guideline, which is available in print format from American Psychiatric Publishing, Inc., and online through the American Psychiatric Association (http://www.psych.org). Part B provides an overview of suicide, including general information on its natural history, course, and epidemiology. It also provides a structured review and synthesis of the evidence that underlies the recommendations made in Part A. Part C draws from the previous sections and summarizes areas for which more research data are needed to guide clinical decisions.

To share feedback on this or other published APA practice guidelines, a form is available at http://www.psych.org/psych_pract/pg/reviewform.cfm.

DEVELOPMENT PROCESS

This practice guideline was developed under the auspices of the Steering Committee on Practice Guidelines. The development process is detailed in the document "APA Guideline Development Process," which is available from the APA Department of Quality Improvement and Psychiatric Services. Key features of this process include the following:

- A comprehensive literature review
- Development of evidence tables
- Initial drafting of the guideline by a work group that included psychiatrists with clinical and research expertise in suicide and suicidality
- Production of multiple revised drafts with widespread review; six organizations and more than 60 individuals submitted significant comments
- Approval by the APA Assembly and Board of Trustees
- Planned revisions at regular intervals

Relevant literature was identified through a computerized search of PubMed for the period from 1966 to 2002. Keywords used were "suicides," "suicide," "attempted suicide," "attempted suicides," "parasuicide," "parasuicides," "self-harm," "self-harming," "suicide, attempted," "suicidal attempt," and "suicidal attempts." A total of 34,851 citations were found. After limiting these references to literature published in English that included abstracts, 17,589 articles were screened by using title and abstract information. Additional, less formal literature searches were conducted by APA staff and individual members of the work group on suicidal behaviors through the use of PubMed, PsycINFO, and Social Sciences Citation Index. Sources of funding were not considered when reviewing the literature.

This document represents a synthesis of current scientific knowledge and rational clinical practice on the assessment and treatment of adult patients with suicidal behaviors. It strives to be as free as possible of bias toward any theoretical approach to treatment. In order for the reader to appreciate the evidence base behind the guideline recommendations and the weight that should be given to each recommendation, the summary of treatment recommendations is keyed according to the level of confidence with which each recommendation is made. Each rating of clinical confidence considers the strength of the available evidence and is based on the best available data. When evidence is limited, the level of confidence also incorporates clinical consensus with regard to a particular clinical decision. In the listing of cited references, each reference is followed by a letter code in brackets that indicates the nature of the supporting evidence.

PART A:
ASSESSMENT, TREATMENT, AND RISK MANAGEMENT RECOMMENDATIONS

I. EXECUTIVE SUMMARY OF RECOMMENDATIONS

A. DEFINITIONS AND GENERAL PRINCIPLES

1. Coding system

Each recommendation is identified as falling into one of three categories of endorsement, indicated by a bracketed Roman numeral following the statement. The three categories represent varying levels of clinical confidence regarding the recommendation:

[I] Recommended with substantial clinical confidence.
[II] Recommended with moderate clinical confidence.
[III] May be recommended on the basis of individual circumstances.

2. Definitions of terms

In this guideline, the following terms will be used:

- Suicide—self-inflicted death with evidence (either explicit or implicit) that the person intended to die.
- Suicide attempt—self-injurious behavior with a nonfatal outcome accompanied by evidence (either explicit or implicit) that the person intended to die.
- Aborted suicide attempt—potentially self-injurious behavior with evidence (either explicit or implicit) that the person intended to die but stopped the attempt before physical damage occurred.
- Suicidal ideation—thoughts of serving as the agent of one's own death. Suicidal ideation may vary in seriousness depending on the specificity of suicide plans and the degree of suicidal intent.
- Suicidal intent—subjective expectation and desire for a self-destructive act to end in death.
- Lethality of suicidal behavior—objective danger to life associated with a suicide method or action. Note that lethality is distinct from and may not always coincide with an individual's expectation of what is medically dangerous.
- Deliberate self-harm—willful self-inflicting of painful, destructive, or injurious acts without intent to die.

A detailed exposition of definitions relating to suicide has been provided by O'Carroll et al. (1).

B. SUICIDE ASSESSMENT

The psychiatric evaluation is the essential element of the suicide assessment process [I]. During the evaluation, the psychiatrist obtains information about the patient's psychiatric and other medical history and current mental state (e.g., through direct questioning and observation about suicidal thinking and behavior as well as through collateral history, if indicated). This information enables the psychiatrist to 1) identify specific factors and features that may generally increase or decrease risk for suicide or other suicidal behaviors and that may serve as modifiable targets for both acute and ongoing interventions, 2) address the patient's immediate safety and determine the most appropriate setting for treatment, and 3) develop a multiaxial differential diagnosis to further guide planning of treatment. The breadth and depth of the psychiatric evaluation aimed specifically at assessing suicide risk will vary with setting; ability or willingness of the patient to provide information; and availability of information from previous contacts with the patient or from other sources, including other mental health professionals, medical records, and family members. Although suicide assessment scales have been developed for research purposes, they lack the predictive validity necessary for use in routine clinical practice. Therefore, suicide assessment scales may be used as aids to suicide assessment but should not be used as predictive instruments or as substitutes for a thorough clinical evaluation [I].

Table 1 presents important domains of a suicide assessment, including the patient's current presentation, individual strengths and weaknesses, history, and psychosocial situation. Information may come from the patient directly or from other sources, including family members, friends, and others in the patient's support network, such as community residence staff or members of the patient's military command. Such individuals may be able to provide information about the patient's current mental state, activities, and psychosocial crises and may also have observed behavior or been privy to communications from the patient that suggest suicidal ideation, plans, or intentions. Contact with such individuals may also provide opportunity for the psychiatrist to attempt to fortify the patient's social support network. This goal often can be accomplished without the psychiatrist's revealing private or confidential information about the patient. In clinical circumstances in which sharing information is important to maintain the safety of the patient or others, it is permissible and even critical to share such information without the patient's consent [I].

It is important to recognize that in many clinical situations not all of the information described in this section may be possible to obtain. It may be necessary to focus initially on those elements judged to be most relevant and to continue the evaluation during subsequent contacts with the patient.

When communicating with the patient, it is important to remember that simply asking about suicidal ideation does not ensure that accurate or complete information will be received. Cultural or religious beliefs about death or suicide, for example, may influence a patient's willingness to speak about suicide during the assessment process as well as the patient's likelihood of acting on suicidal ideas. Consequently, the psychiatrist may wish to explore the patient's cultural and religious beliefs, particularly as they relate to death and to suicide [II].

It is important for the psychiatrist to focus on the nature, frequency, depth, timing, and persistence of suicidal ideation [I]. If ideation is present, request more detail about the presence or absence of specific plans for suicide, including any steps taken to enact plans or prepare for death [I]. If other aspects of the clinical presentation seem inconsistent with an initial denial of suicidal thoughts, additional questioning of the patient may be indicated [II].

Where there is a history of suicide attempts, aborted attempts, or other self-harming behavior, it is important to obtain as much detail as possible about the timing, intent, method, and consequences of such behaviors [I]. It is also useful to determine the life context in which they occurred and whether they occurred in association with intoxication or chronic use of alcohol or other substances [II]. For individuals in previous or current psychiatric treatment, it is helpful to determine the strength and stability of the therapeutic relationship(s) [II].

TABLE 1. Characteristics Evaluated in the Psychiatric Assessment of Patients With Suicidal Behavior

Current presentation of suicidality
Suicidal or self-harming thoughts, plans, behaviors, and intent
Specific methods considered for suicide, including their lethality and the patient's expectation about lethality, as well as whether firearms are accessible
Evidence of hopelessness, impulsiveness, anhedonia, panic attacks, or anxiety
Reasons for living and plans for the future
Alcohol or other substance use associated with the current presentation
Thoughts, plans, or intentions of violence toward others
Psychiatric illnesses
Current signs and symptoms of psychiatric disorders with particular attention to mood disorders (primarily major depressive disorder or mixed episodes), schizophrenia, substance use disorders, anxiety disorders, and personality disorders (primarily borderline and antisocial personality disorders)
Previous psychiatric diagnoses and treatments, including illness onset and course and psychiatric hospitalizations, as well as treatment for substance use disorders
History
Previous suicide attempts, aborted suicide attempts, or other self-harming behaviors
Previous or current medical diagnoses and treatments, including surgeries or hospitalizations
Family history of suicide or suicide attempts or a family history of mental illness, including substance abuse
Psychosocial situation
Acute psychosocial crises and chronic psychosocial stressors, which may include actual or perceived interpersonal losses, financial difficulties or changes in socioeconomic status, family discord, domestic violence, and past or current sexual or physical abuse or neglect
Employment status, living situation (including whether or not there are infants or children in the home), and presence or absence of external supports
Family constellation and quality of family relationships
Cultural or religious beliefs about death or suicide
Individual strengths and vulnerabilities
Coping skills
Personality traits
Past responses to stress
Capacity for reality testing
Ability to tolerate psychological pain and satisfy psychological needs

If the patient reports a specific method for suicide, it is important for the psychiatrist to ascertain the patient's expectation about its lethality, for if actual lethality exceeds what is expected, the patient's risk for accidental suicide may be high even if intent is low [I]. In general, the psychiatrist should assign a higher level of risk to patients who have high degrees of suicidal intent or describe more detailed and specific suicide plans, particularly those involving violent and irreversible methods [I]. If the patient has access to a firearm, the psychiatrist is advised to discuss with and recommend to the patient or a significant other the importance of restricting access to, securing, or removing this and other weapons [I].

Documenting the suicide assessment is essential [I]. Typically, suicide assessment and its documentation occur after an initial evaluation or, for patients in ongoing treatment, when suicidal ideation or behaviors emerge or when there is significant worsening or dramatic and unanticipated improvement in the patient's condition. For inpatients, reevaluation also typically occurs with changes in the level of precautions or observations, when passes are issued, and dur-

ing evaluation for discharge. As with the level of detail of the suicide assessment, the extent of documentation at each of these times varies with the clinical circumstances. Communications with other caregivers and with the family or significant others should also be documented [I]. When the patient or others have been given specific instructions about firearms or other weapons, this communication should also be noted in the record [I].

C. ESTIMATION OF SUICIDE RISK

Suicide and suicidal behaviors cause severe personal, social, and economic consequences. Despite the severity of these consequences, suicide and suicidal behaviors are statistically rare, even in populations at risk. For example, although suicidal ideation and attempts are associated with increased suicide risk, most individuals with suicidal thoughts or attempts will never die by suicide. It is estimated that attempts and ideation occur in approximately 0.7% and 5.6% of the general U.S. population per year, respectively (2). In comparison, in the United States, the annual incidence of suicide in the general population is approximately 10.7 suicides for every 100,000 persons, or 0.0107% of the total population per year (3). This rarity of suicide, even in groups known to be at higher risk than the general population, contributes to the impossibility of predicting suicide.

The statistical rarity of suicide also makes it impossible to predict on the basis of risk factors either alone or in combination. For the psychiatrist, knowing that a particular factor (e.g., major depressive disorder, hopelessness, substance use) increases a patient's relative risk for suicide may affect the treatment plan, including determination of a treatment setting. At the same time, knowledge of risk factors will not permit the psychiatrist to predict when or if a specific patient will die by suicide. This does not mean that the psychiatrist should ignore risk factors or view suicidal patients as untreatable. On the contrary, an initial goal of the psychiatrist should be to estimate the patient's risk through knowledgeable assessment of risk and protective factors, with a primary and ongoing goal of reducing suicide risk [I].

Some factors may increase or decrease risk for suicide; others may be more relevant to risk for suicide attempts or other self-injurious behaviors, which are in turn associated with potential morbidity as well as increased suicide risk. In weighing risk and protective factors for an individual patient, consideration may be given to 1) the presence of psychiatric illness; 2) specific psychiatric symptoms such as hopelessness, anxiety, agitation, or intense suicidal ideation; 3) unique circumstances such as psychosocial stressors and availability of methods; and 4) other relevant clinical factors such as genetics and medical, psychological, or psychodynamic issues [I].

It is important to recognize that many of these factors are not simply present or absent but instead may vary in severity. Others, such as psychological or psychodynamic issues, may contribute to risk in some individuals but not in others or may be relevant only when they occur in combination with particular psychosocial stressors.

Once factors are identified, the psychiatrist can determine if they are modifiable. Past history, family history, and demographic characteristics are examples of nonmodifiable factors. Financial difficulties or unemployment can also be difficult to modify, at least in the short term. While immutable factors are important to identify, they cannot be the focus of intervention. Rather, to decrease a patient's suicide risk, the treatment should attempt to mitigate or strengthen those risk and protective factors that can be modified [I]. For example, the psychiatrist may attend to patient safety, address associated psychological or social problems and stressors, augment social support networks, and treat associated psychiatric disorders (such as mood disorders, psychotic disorders, substance use disorders, and personality disorders) or symptoms (such as severe anxiety, agitation, or insomnia).

D. PSYCHIATRIC MANAGEMENT

Psychiatric management consists of a broad array of therapeutic interventions that should be instituted for patients with suicidal thoughts, plans, or behaviors [I]. Psychiatric management

includes determining a setting for treatment and supervision, attending to patient safety, and working to establish a cooperative and collaborative physician-patient relationship. For patients in ongoing treatment, psychiatric management also includes establishing and maintaining a therapeutic alliance; coordinating treatment provided by multiple clinicians; monitoring the patient's progress and response to the treatment plan; and conducting ongoing assessments of the patient's safety, psychiatric status, and level of functioning. Additionally, psychiatric management may include encouraging treatment adherence and providing education to the patient and, when indicated, family members and significant others.

Patients with suicidal thoughts, plans, or behaviors should generally be treated in the setting that is least restrictive yet most likely to be safe and effective [I]. Treatment settings and conditions include a continuum of possible levels of care, from involuntary inpatient hospitalization through partial hospital and intensive outpatient programs to occasional ambulatory visits. Choice of specific treatment setting depends not only on the psychiatrist's estimate of the patient's current suicide risk and potential for dangerousness to others, but also on other aspects of the patient's current status, including 1) medical and psychiatric comorbidity; 2) strength and availability of a psychosocial support network; and 3) ability to provide adequate self-care, give reliable feedback to the psychiatrist, and cooperate with treatment. In addition, the benefits of intensive interventions such as hospitalization must be weighed against their possible negative effects (e.g., disruption of employment, financial and other psychosocial stress, social stigma).

For some individuals, self-injurious behaviors may occur on a recurring or even chronic basis. Although such behaviors may occur without evidence of suicidal intent, this may not always be the case. Even when individuals have had repeated contacts with the health care system, each act should be reassessed in the context of the current situation [I].

In treating suicidal patients, particularly those with severe or recurring suicidality or self-injurious behavior, the psychiatrist should be aware of his or her own emotions and reactions that may interfere with the patient's care [I]. For difficult-to-treat patients, consultation or supervision from a colleague may help in affirming the appropriateness of the treatment plan, suggesting alternative therapeutic approaches, or monitoring and dealing with countertransference issues [I].

The suicide prevention contract, or "no-harm contract," is commonly used in clinical practice but should not be considered as a substitute for a careful clinical assessment [I]. A patient's willingness (or reluctance) to enter into an oral or a written suicide prevention contract should not be viewed as an absolute indicator of suitability for discharge (or hospitalization) [I]. In addition, such contracts are not recommended for use with patients who are agitated, psychotic, impulsive, or under the influence of an intoxicating substance [II]. Furthermore, since suicide prevention contracts are dependent on an established physician-patient relationship, they are not recommended for use in emergency settings or with newly admitted or unknown inpatients [II].

Despite best efforts at suicide assessment and treatment, suicides can and do occur in clinical practice. In fact, significant proportions of individuals who die by suicide have seen a physician within several months of death and may have received specific mental health treatment. Death of a patient by suicide will often have a significant effect on the treating psychiatrist and may result in increased stress and loss of professional self-esteem. When the suicide of a patient occurs, the psychiatrist may find it helpful to seek support from colleagues and obtain consultation or supervision to enable him or her to continue to treat other patients effectively and respond to the inquiries or mental health needs of survivors [II]. Consultation with an attorney or a risk manager may also be useful [II]. The psychiatrist should be aware that patient confidentiality extends beyond the patient's death and that the usual provisions relating to medical records still apply. Any additional documentation included in the medical record after the patient's death should be dated contemporaneously, not backdated, and previous entries should not be altered [I]. Depending on the circumstances, conversations with family members may

be appropriate and can allay grief [II]. In the aftermath of a loved one's suicide, family members themselves are more vulnerable to physical and psychological disorders and should be helped to obtain psychiatric intervention, although not necessarily by the same psychiatrist who treated the individual who died by suicide [II].

E. SPECIFIC TREATMENT MODALITIES

In developing a plan of treatment that addresses suicidal thoughts or behaviors, the psychiatrist should consider the potential benefits of somatic therapies as well as the potential benefits of psychosocial interventions, including the psychotherapies [I]. Clinical experience indicates that many patients with suicidal thoughts, plans, or behaviors will benefit most from a combination of these treatments [II]. The psychiatrist should address the modifiable risk factors identified in the initial psychiatric evaluation and make ongoing assessments during the course of treatment [I]. In general, therapeutic approaches should target specific axis I and axis II psychiatric disorders; specific associated symptoms such as depression, agitation, anxiety, or insomnia; or the predominant psychodynamic or psychosocial stressor [I]. While the goal of pharmacologic treatment may be acute symptom relief, including acute relief of suicidality or acute treatment of a specific diagnosis, the treatment goals of psychosocial interventions may be broader and longer term, including achieving improvements in interpersonal relationships, coping skills, psychosocial functioning, and management of affects. Since treatment should be a collaborative process between the patient and clinician(s), the patient's preferences are important to consider when developing an individual treatment plan [I].

1. Somatic interventions

Evidence for a lowering of suicide rates with antidepressant treatment is inconclusive. However, the documented efficacy of antidepressants in treating acute depressive episodes and their long-term benefit in patients with recurrent forms of severe anxiety or depressive disorders support their use in individuals with these disorders who are experiencing suicidal thoughts or behaviors [II]. It is advisable to select an antidepressant with a low risk of lethality on acute overdose, such as a selective serotonin reuptake inhibitor (SSRI) or other newer antidepressant, and to prescribe conservative quantities, especially for patients who are not well-known [I]. For patients with prominent insomnia, a sedating antidepressant or an adjunctive hypnotic agent can be considered [II]. Since antidepressant effects may not be observed for days to weeks after treatment has started, patients should be monitored closely early in treatment and educated about this probable delay in symptom relief [I].

To treat symptoms such as severe insomnia, agitation, panic attacks, or psychic anxiety, benzodiazepines may be indicated on a short-term basis [II], with long-acting agents often being preferred over short-acting agents [II]. The benefits of benzodiazepine treatment should be weighed against their occasional tendency to produce disinhibition and their potential for interactions with other sedatives, including alcohol [I]. Alternatively, other medications that may be used for their calming effects in highly anxious and agitated patients include trazodone, low doses of some second-generation antipsychotics, and some anticonvulsants such as gabapentin or divalproex [III]. If benzodiazepines are being discontinued after prolonged use, their doses should be reduced gradually and the patient monitored for increasing symptoms of anxiety, agitation, depression, or suicidality [II].

There is strong evidence that long-term maintenance treatment with lithium salts is associated with major reductions in the risk of both suicide and suicide attempts in patients with bipolar disorder, and there is moderate evidence for similar risk reductions in patients with recurrent major depressive disorder [I]. Specific anticonvulsants have been shown to be efficacious in treating episodes of mania (i.e., divalproex) or bipolar depression (i.e., lamotrigine),

but there is no clear evidence that their use alters rates of suicide or suicidal behaviors [II]. Consequently, when deciding between lithium and other first-line agents for treatment of patients with bipolar disorder, the efficacy of lithium in decreasing suicidal behavior should be taken into consideration when weighing the benefits and risks of treatment with each medication. In addition, if lithium is prescribed, the potential toxicity of lithium in overdose should be taken into consideration when deciding on the quantity of lithium to give with each prescription [I].

Clozapine treatment is associated with significant decreases in rates of suicide attempts and perhaps suicide for individuals with schizophrenia and schizoaffective disorder. Thus, clozapine treatment should be given serious consideration for psychotic patients with frequent suicidal ideation, attempts, or both [I]. However, the benefits of clozapine treatment need to be weighed against the risk of adverse effects, including potentially fatal agranulocytosis and myocarditis, which has generally led clozapine to be reserved for use when psychotic symptoms have not responded to other antipsychotic medications. If treatment is indicated with an antipsychotic other than clozapine, the other second-generation antipsychotics (e.g., risperidone, olanzapine, quetiapine, ziprasidone, aripiprazole) are preferred over the first-generation antipsychotic agents [I].

ECT has established efficacy in patients with severe depressive illness, with or without psychotic features. Since ECT is associated with a rapid and robust antidepressant response as well as a rapid diminution in associated suicidal thoughts, ECT may be recommended as a treatment for severe episodes of major depression that are accompanied by suicidal thoughts or behaviors [I]. Under certain clinical circumstances, ECT may also be used to treat suicidal patients with schizophrenia, schizoaffective disorder, or mixed or manic episodes of bipolar disorder [II]. Regardless of diagnosis, ECT is especially indicated for patients with catatonic features or for whom a delay in treatment response is considered life threatening [I]. ECT may also be indicated for suicidal individuals during pregnancy and for those who have already failed to tolerate or respond to trials of medication [II]. Since there is no evidence of a long-term reduction of suicide risk with ECT, continuation or maintenance treatment with pharmacotherapy or with ECT is recommended after an acute ECT course [I].

2. Psychosocial interventions

Psychotherapies and other psychosocial interventions play an important role in the treatment of individuals with suicidal thoughts and behaviors [II]. A substantial body of evidence supports the efficacy of psychotherapy in the treatment of specific disorders, such as nonpsychotic major depressive disorder and borderline personality disorder, which are associated with increased suicide risk. For example, interpersonal psychotherapy and cognitive behavior therapy have been found to be effective in clinical trials for the treatment of depression. Therefore, psychotherapies such as interpersonal psychotherapy and cognitive behavior therapy may be considered appropriate treatments for suicidal behavior, particularly when it occurs in the context of depression [II]. In addition, cognitive behavior therapy may be used to decrease two important risk factors for suicide: hopelessness [II] and suicide attempts in depressed outpatients [III]. For patients with a diagnosis of borderline personality disorder, psychodynamic therapy and dialectical behavior therapy may be appropriate treatments for suicidal behaviors [II], because modest evidence has shown these therapies to be associated with decreased self-injurious behaviors, including suicide attempts. Although not targeted specifically to suicide or suicidal behaviors, other psychosocial treatments may also be helpful in reducing symptoms and improving functioning in individuals with psychotic disorders and in treating alcohol and other substance use disorders that are themselves associated with increased rates of suicide and suicidal behaviors [II]. For patients who have attempted suicide or engaged in self-harming behaviors without suicidal intent, specific psychosocial interventions such as rapid intervention; follow-up outreach; problem-solving therapy; brief psychological treatment; or family, couples, or group therapies may be useful despite limited evidence for their efficacy [III].

TABLE 2. Circumstances in Which a Suicide Assessment May Be Indicated Clinically

- Emergency department or crisis evaluation
- Intake evaluation (on either an inpatient or an outpatient basis)
- Before a change in observation status or treatment setting (e.g., discontinuation of one-to-one observation, discharge from inpatient setting)
- Abrupt change in clinical presentation (either precipitous worsening or sudden, dramatic improvement)
- Lack of improvement or gradual worsening despite treatment
- Anticipation or experience of a significant interpersonal loss or psychosocial stressor (e.g., divorce, financial loss, legal problems, personal shame or humiliation)
- Onset of a physical illness (particularly if life threatening, disfiguring, or associated with severe pain or loss of executive functioning)

II. ASSESSMENT OF PATIENTS WITH SUICIDAL BEHAVIORS

A. OVERVIEW

The assessment of the suicidal patient is an ongoing process that comprises many interconnected elements (Table 1). In addition, there are a number of points during patients' evaluation and treatment at which a suicide assessment may be indicated (Table 2).

The ability of the psychiatrist to connect with the patient, establish rapport, and demonstrate empathy is an important ingredient of the assessment process. For suicidal patients who are followed on an ongoing basis, the doctor-patient relationship will provide the base from which risk and protective factors continue to be identified and from which therapeutic interventions, such as psychotherapies and pharmacotherapies, are offered.

At the core of the suicide assessment, the psychiatric evaluation will provide information about the patient's history, current circumstances, and mental state and will include direct questioning about suicidal thinking and behaviors. This evaluation, in turn, will enable the psychiatrist to identify specific factors and features that may increase or decrease the potential risk for suicide or other suicidal behaviors. These factors and features may include developmental, biomedical, psychopathologic, psychodynamic, and psychosocial aspects of the patient's current presentation and history, all of which may serve as modifiable targets for both acute and ongoing interventions. Such information will also be important in addressing the patient's immediate safety, determining the most appropriate setting for treatment, and developing a multiaxial differential diagnosis that will further guide the planning of treatment.

Although the approach to the suicidal patient is common to all individuals regardless of diagnosis or clinical presentation, the breadth and depth of the psychiatric evaluation will vary with the setting of the assessment; the ability or willingness of the patient to provide information; and the availability of information from previous contacts with the patient or from other sources, including other mental health professionals, medical records, and family members. Since the approach to assessment does vary to some degree in the assessment of suicidal children and adolescents, the psychiatrist who evaluates youths may wish to review the American Academy of Child and Adolescent Psychiatry's *Practice Parameter for the Assessment and Treatment of Children and Adolescents With Suicidal Behavior* (4). In some circumstances, the urgency of the situation or the presence of substance intoxication may necessitate making a decision to facilitate patient safety (e.g., instituting hospitalization or one-to-one observation) before all rel-

evant information has been obtained. Furthermore, when working with a team of other professionals, the psychiatrist may not obtain all information him- or herself but will need to provide leadership for the assessment process so that necessary information is obtained and integrated into a final assessment. Since the patient may minimize the severity or even the existence of his or her difficulties, other individuals may be valuable resources for the psychiatrist in providing information about the patient's current mental state, activities, and psychosocial crises. Such individuals may include the patient's family members and friends but may also include other physicians, other medical or mental health professionals, teachers or other school personnel, members of the patient's military command, and staff from supervised housing programs or other settings where the patient resides.

B. CONDUCT A THOROUGH PSYCHIATRIC EVALUATION

The psychiatric evaluation is the core element of the suicide risk assessment. This section provides an overview of the key aspects of the psychiatric evaluation as they relate to the assessment of patients with suicidal behaviors. Although the factors that are associated with an increased or decreased risk of suicide differ from the factors associated with an increased or decreased risk of suicide attempts, it is important to identify factors modulating the risk of any suicidal behaviors. Additional details on specific risk factors that should be identified during the assessment are discussed in Sections II.E, "Estimate Suicide Risk," and III.H, "Reassess Safety and Suicide Risk." For further discussion of other aspects of the psychiatric evaluation, the psychiatrist is referred to the American Psychiatric Association's *Practice Guideline for Psychiatric Evaluation of Adults* (5). Additional information on details of the suicide assessment process is reviewed elsewhere (6, 7).

1. Identify specific psychiatric signs and symptoms

It is important to identify specific psychiatric signs and symptoms that are correlated with an increased risk of suicide or other suicidal behaviors. Symptoms that have been associated with suicide attempts or with suicide include aggression, violence toward others, impulsiveness, hopelessness, and agitation. Psychic anxiety, which has been defined as subjective feelings of anxiety, fearfulness, or apprehension whether or not focused on specific concerns, has also been associated with an increased risk of suicide, as have anhedonia, global insomnia, and panic attacks. In addition, identifying other psychiatric signs and symptoms (e.g., psychosis, depression) will aid in determining whether the patient has a psychiatric syndrome that should also be a focus of treatment.

2. Assess past suicidal behavior, including intent of self-injurious acts

A history of past suicide attempts is one of the most significant risk factors for suicide, and this risk may be increased by more serious, more frequent, or more recent attempts. Therefore, it is important for the psychiatrist to inquire about past suicide attempts and self-destructive behaviors, including specific questioning about aborted suicide attempts. Examples of the latter would include putting a gun to one's head but not firing it, driving to a bridge but not jumping, or creating a noose but not using it. For each attempt or aborted attempt, the psychiatrist should try to obtain details about the precipitants, timing, intent, and consequences as well as the attempt's medical severity. The patient's consumption of alcohol and drugs before the attempt should also be ascertained, since intoxication can facilitate impulsive suicide attempts but can also be a component of a more serious suicide plan. In understanding the issues that culminated in the suicide attempt, interpersonal aspects of the attempt should also be delineated. Examples might include the dynamic or interpersonal issues leading up to the attempt, significant persons present at the time of the attempt, persons to whom the attempt was communicated, and how the attempt was averted. It is also important to determine the patient's thoughts

about the attempt, such as his or her own perception of the chosen method's lethality, ambivalence toward living, visualization of death, degree of premeditation, persistence of suicidal ideation, and reaction to the attempt. It is also helpful to inquire about past risk-taking behaviors such as unsafe sexual practices and reckless driving.

3. Review past treatment history and treatment relationships

A review of the patient's treatment history is another crucial element of the suicide risk assessment. A thorough treatment history can serve as a systematic method for gaining information on comorbid diagnoses, prior hospitalizations, suicidal ideation, or previous suicide attempts. Obtaining a history of medical treatment can help in identifying medically serious suicide attempts as well as in identifying past or current medical diagnoses that may be associated with augmented suicide risk.

Many patients who are being assessed for suicidality will already be in treatment, either with other psychiatrists or mental health professionals or with primary care physicians or medical specialists. Contacts with such caregivers can provide a great deal of relevant information and help in determining a setting and/or plan for treatment. With patients who are currently in treatment, it is also important to gauge the strength and stability of the therapeutic relationships, because a positive therapeutic alliance has been suggested to be protective against suicidal behaviors. On the other hand, a patient with a suicide attempt or suicidal ideation who does not have a reliable therapeutic alliance may represent an increased risk for suicide, which would need to be addressed accordingly.

4. Identify family history of suicide, mental illness, and dysfunction

Identifying family history is particularly important during the psychiatric evaluation. The psychiatrist should specifically inquire about the presence of suicide and suicide attempts as well as a family history of any psychiatric hospitalizations or mental illness, including substance use disorders. When suicides have occurred in first-degree relatives, it is often helpful to learn more about the circumstances, including the patient's involvement and the patient's and relative's ages at the time of the suicide.

The patient's childhood and current family milieu are also relevant, since many aspects of family dysfunction may be linked to self-destructive behaviors. Such factors include a history of family conflict or separation, parental legal trouble, family substance use, domestic violence, and physical and/or sexual abuse.

5. Identify current psychosocial situation and nature of crisis

An assessment of the patient's current psychosocial situation is important to detect acute psychosocial crises or chronic psychosocial stressors that may augment suicide risk (e.g., financial or legal difficulties; interpersonal conflicts or losses; stressors in gay, lesbian, or bisexual youths; housing problems; job loss; educational failure). Other significant precipitants may include perceived losses or recent or impending humiliation. An understanding of the patient's psychosocial situation is also essential in helping the patient to mobilize external supports, which can have a protective influence on suicide risk.

6. Appreciate psychological strengths and vulnerabilities of the individual patient

In estimating suicide risk and formulating a treatment plan, the clinician needs to appreciate the strengths and vulnerabilities of the individual patient. Particular strengths and vulnerabilities may include such factors as coping skills, personality traits, thinking style, and developmental and psychological needs. For example, in addition to serving as state-dependent symptoms, hopelessness, aggression, and impulsivity may also constitute traits, greater degrees of which may be associated with an increased risk for suicidal behaviors. Increased suicide risk

has also been seen in individuals who exhibit thought constriction or polarized (either-or) thinking as well in individuals with closed-mindedness (i.e., a narrowed scope and intensity of interests). Perfectionism with excessively high self-expectation is another factor that has been noted in clinical practice to be a possible contributor to suicide risk. In weighing the strengths and vulnerabilities of the individual patient, it is also helpful to determine the patient's tendency to engage in risk-taking behaviors as well as the patient's past responses to stress, including the capacity for reality testing and the ability to tolerate rejection, subjective loneliness, or psychological pain when his or her unique psychological needs are not met.

C. SPECIFICALLY INQUIRE ABOUT SUICIDAL THOUGHTS, PLANS, AND BEHAVIORS

In general, the more an individual has thought about suicide, has made specific plans for suicide, and intends to act on those plans, the greater will be his or her risk. Thus, as part of the suicide assessment it is essential to inquire specifically about the patient's suicidal thoughts, plans, behaviors, and intent. Although such questions will often flow naturally from discussion of the patient's current situation, this will not invariably be true. The exact wording of questions and the extent of questioning will also differ with the clinical situation. Examples of issues that the psychiatrist may wish to address in this portion of the suicide assessment are given in Table 3.

1. Elicit the presence or absence of suicidal ideation

Inquiring about suicidal ideation is an essential component of the suicide assessment. Although some fear that raising the topic of suicide will "plant" the issue in the patient's mind, this is not the case. In fact, broaching the issue of suicidal ideation may be a relief for the suicidal patient by opening an avenue for discussion and giving him or her an opportunity to feel understood.

In asking about suicidal ideas, it is often helpful to begin with questions that address the patient's feelings about living, such as, "How does life seem to you at this point?" or "Have you ever felt that life was not worth living?" or "Did you ever wish you could go to sleep and just not wake up?" If the patient's response reflects dissatisfaction with life or a desire to escape it, this response can lead naturally into more specific questions about whether the patient has had thoughts of death or suicide. When such thoughts are elicited, it is important to focus on the nature, frequency, extent, and timing of them and to understand the interpersonal, situational, and symptomatic context in which they are occurring.

Even if the patient initially denies thoughts of death or suicide, the psychiatrist should consider asking additional questions. Examples might include asking about plans for the future or about recent acts or thoughts of self-harm. Regardless of the approach to the interview, not all individuals will report having suicidal ideas even when such thoughts are present. Thus, depending on the clinical circumstances, it may be important for the psychiatrist to speak with family members or friends to determine whether they have observed behavior (e.g., recent purchase of a gun) or have been privy to thoughts that suggest suicidal ideation (see Section V.C, "Communication With Significant Others"). In addition, patients who are initially interviewed when they are intoxicated with alcohol or other substances should be reassessed for suicidality once the intoxication has resolved.

2. Elicit the presence or absence of a suicide plan

If suicidal ideation is present, the psychiatrist will next probe for more detailed information about specific plans for suicide and any steps that have been taken toward enacting those plans. Although some suicidal acts can occur impulsively with little or no planning, more detailed plans are generally associated with a greater suicide risk. Violent and irreversible methods, such as firearms, jumping, and motor vehicle accidents, require particular attention. However, the patient's belief about the lethality of the method may be as important as the actual lethality of the method itself.

TABLE 3. Questions That May Be Helpful in Inquiring About Specific Aspects of Suicidal Thoughts, Plans, and Behaviors

Begin with questions that address the patient's feelings about living

- Have you ever felt that life was not worth living?
- Did you ever wish you could go to sleep and just not wake up?

Follow up with specific questions that ask about thoughts of death, self-harm, or suicide

- Is death something you've thought about recently?
- Have things ever reached the point that you've thought of harming yourself?

For individuals who have thoughts of self-harm or suicide

- When did you first notice such thoughts?
- What led up to the thoughts (e.g., interpersonal and psychosocial precipitants, including real or imagined losses; specific symptoms such as mood changes, anhedonia, hopelessness, anxiety, agitation, psychosis)?
- How often have those thoughts occurred (including frequency, obsessional quality, controllability)?
- How close have you come to acting on those thoughts?
- How likely do you think it is that you will act on them in the future?
- Have you ever started to harm (or kill) yourself but stopped before doing something (e.g., holding knife or gun to your body but stopping before acting, going to edge of bridge but not jumping)?
- What do you envision happening if you actually killed yourself (e.g., escape, reunion with significant other, rebirth, reactions of others)?
- Have you made a specific plan to harm or kill yourself? (If so, what does the plan include?)
- Do you have guns or other weapons available to you?
- Have you made any particular preparations (e.g., purchasing specific items, writing a note or a will, making financial arrangements, taking steps to avoid discovery, rehearsing the plan)?
- Have you spoken to anyone about your plans?
- How does the future look to you?
- What things would lead you to feel more (or less) hopeful about the future (e.g., treatment, reconciliation of relationship, resolution of stressors)?
- What things would make it more (or less) likely that you would try to kill yourself?
- What things in your life would lead you to want to escape from life or be dead?
- What things in your life make you want to go on living?
- If you began to have thoughts of harming or killing yourself again, what would you do?

TABLE 3. Questions That May Be Helpful in Inquiring About Specific Aspects of Suicidal Thoughts, Plans, and Behaviors *(continued)*

For individuals who have attempted suicide or engaged in self-damaging action(s), parallel questions to those in the previous section can address the prior attempt(s). Additional questions can be asked in general terms or can refer to the specific method used and may include:

- Can you describe what happened (e.g., circumstances, precipitants, view of future, use of alcohol or other substances, method, intent, seriousness of injury)?
- What thoughts were you having beforehand that led up to the attempt?
- What did you think would happen (e.g., going to sleep versus injury versus dying, getting a reaction out of a particular person)?
- Were other people present at the time?
- Did you seek help afterward yourself, or did someone get help for you?
- Had you planned to be discovered, or were you found accidentally?
- How did you feel afterward (e.g., relief versus regret at being alive)?
- Did you receive treatment afterward (e.g., medical versus psychiatric, emergency department versus inpatient versus outpatient)?
- Has your view of things changed, or is anything different for you since the attempt?
- Are there other times in the past when you've tried to harm (or kill) yourself?

For individuals with repeated suicidal thoughts or attempts

- About how often have you tried to harm (or kill) yourself?
- When was the most recent time?
- Can you describe your thoughts at the time that you were thinking most seriously about suicide?
- When was your most serious attempt at harming or killing yourself?
- What led up to it, and what happened afterward?

For individuals with psychosis, ask specifically about hallucinations and delusions

- Can you describe the voices (e.g., single versus multiple, male versus female, internal versus external, recognizable versus nonrecognizable)?
- What do the voices say (e.g., positive remarks versus negative remarks versus threats)? (If the remarks are commands, determine if they are for harmless versus harmful acts; ask for examples)?
- How do you cope with (or respond to) the voices?
- Have you ever done what the voices ask you to do? (What led you to obey the voices? If you tried to resist them, what made it difficult?)
- Have there been times when the voices told you to hurt or kill yourself? (How often? What happened?)
- Are you worried about having a serious illness or that your body is rotting?
- Are you concerned about your financial situation even when others tell you there's nothing to worry about?
- Are there things that you've been feeling guilty about or blaming yourself for?

TABLE 3. Questions That May Be Helpful in Inquiring About Specific Aspects of Suicidal Thoughts, Plans, and Behaviors *(continued)*

Consider assessing the patient's potential to harm others in addition to him- or herself

- Are there others who you think may be responsible for what you're experiencing (e.g., persecutory ideas, passivity experiences)? Are you having any thoughts of harming them?
- Are there other people you would want to die with you?
- Are there others who you think would be unable to go on without you?

If the patient does not report a plan, the psychiatrist can ask whether there are certain conditions under which the patient would consider suicide (e.g., divorce, going to jail, housing loss) or whether it is likely that such a plan will be formed or acted on in the near future. If the patient reports that he or she is unlikely to act on the suicidal thoughts, the psychiatrist should determine what factors are contributing to that expectation, as such questioning can identify protective factors.

Whether or not a plan is present, if a patient has acknowledged suicidal ideation, there should be a specific inquiry about the presence or absence of a firearm in the home or workplace. It is also helpful to ask whether there have been recent changes in access to firearms or other weapons, including recent purchases or altered arrangements for storage. If the patient has access to a firearm, the psychiatrist is advised to discuss with and recommend to the patient or a significant other the importance of restricting access to, securing, or removing this and other weapons. Such discussions should be documented in the medical record, including any instructions that have been given to the patient and significant others about firearms or other weapons.

3. Assess the degree of suicidality, including suicidal intent and lethality of plan

Regardless of whether the patient has developed a suicide plan, the patient's level of suicidal intent should be explored. Suicidal intent reflects the intensity of a patient's wish to die and can be assessed by determining the patient's motivation for suicide as well as the seriousness and extent of his or her aim to die, including any associated behaviors or planning for suicide. If the patient has developed a suicide plan, it is important to assess its lethality. The lethality of the plan can be ascertained through questions about the method, the patient's knowledge and skill concerning its use, and the absence of intervening persons or protective circumstances. In general, the greater and clearer the intent, the higher the risk for suicide will be. Thus, even a patient with a low-lethality suicide plan or attempt may be at high risk in the future if intentions are strong and the patient believes that the chosen method will be fatal. At the same time, a patient with low suicidal intent may still die from suicide by erroneously believing that a particular method is not lethal.

4. Understand the relevance and limitations of suicide assessment scales

Although a number of suicide assessment scales have been developed for use in research and are described more fully in Part B of the guideline, their clinical utility is limited. Self-report rating scales may sometimes assist in opening communication with the patient about particular feelings or experiences. In addition, the content of suicide rating scales, such as the Scale for Suicide Ideation (8) and the Suicide Intent Scale (9), may be helpful to psychiatrists in developing a thorough line of questioning about suicide and suicidal behaviors. However, existing suicide assessment scales suffer from high false positive and false negative rates and have very low positive predictive values (10). As a result, such rating scales cannot substitute for thoughtful and clinically appropriate evaluation and are not recommended for clinical estimations of suicide risk.

D. ESTABLISH A MULTIAXIAL DIAGNOSIS

In conceptualizing suicide risk, it is important for the psychiatrist to develop a multiaxial differential diagnosis over the course of the psychiatric evaluation. Studies have shown that more than 90% of individuals who die by suicide satisfy the criteria for one or more psychiatric disorders. Thus, the psychiatrist should determine whether a patient has a primary axis I or axis II diagnosis. Suicide and other suicidal behaviors are also more likely to occur in individuals with more than one psychiatric diagnosis. As a result, it is important to note other current or past axis I or axis II diagnoses, including those that may currently be in remission.

Identification of physical illness (axis III) is essential since such diagnoses may also be associated with an increased risk of suicide as well as with an increased risk of other suicidal behaviors.

For some individuals, this increase in risk may result from increased rates of comorbid psychiatric illness or from the direct physiological effects of physical illness or its treatment. Physical illnesses may also be a source of social and/or psychological stress, which in turn may augment risk.

Also crucial in determining suicide risk is the recognition of psychosocial stressors (axis IV), which may be either acute or chronic. Certain stressors, such as sudden unemployment, interpersonal loss, social isolation, and dysfunctional relationships, can increase the likelihood of suicide attempts as well as increase the risk of suicide. At the same time, it is important to note that life events have different meanings for different individuals. Thus, in determining whether a particular stressor may confer risk for suicidal behavior, it is necessary to consider the perceived importance and meaning of the life event for the individual patient.

As the final component of the multiaxial diagnosis, the patient's baseline and current levels of functioning are important to assess (axis V). Also, the clinician should assess the relative change in the patient's level of functioning and the patient's view of and feelings about his or her functioning. Although suicidal ideation and/or suicide attempts are reflected in the Global Assessment of Functioning (GAF) scoring recommendations, it should be noted that there is no agreed-on correlation between a GAF score and level of suicide risk.

E. ESTIMATE SUICIDE RISK

The goal of the suicide risk assessment is to identify factors that may increase or decrease a patient's level of suicide risk, to estimate an overall level of suicide risk, and to develop a treatment plan that addresses patient safety and modifiable contributors to suicide risk. The assessment is comprehensive in scope, integrating knowledge of the patient's specific risk factors; clinical history, including psychopathological development; and interaction with the clinician. The estimation of suicide risk, at the culmination of the suicide assessment, is the quintessential clinical judgment, since no study has identified one specific risk factor or set of risk factors as specifically predictive of suicide or other suicidal behavior.

Table 4 provides a list of factors that have been associated with increased suicide risk, and Table 5 lists factors that have been associated with protective effects. While risk factors are typically additive (i.e., the patient's level of risk increases with the number of risk factors), they may also interact in a synergistic fashion. For example, the combined risk associated with comorbid depression and physical illness may be greater than the sum of the risk associated with each in isolation. At the same time, certain risk factors, such as a recent suicide attempt (especially one of high lethality), access to a firearm, and the presence of a suicide note, should be considered serious in and of themselves, regardless of whether other risk factors are present.

The effect on suicide risk of some risk factors, such as particular life events or psychological strengths and vulnerabilities, will vary on an individual basis. Risk factors must also be assessed in context, as certain risk factors are more applicable to particular diagnostic groups, while others carry more general risk. Finally, it should be kept in mind that, because of the low rate of suicide in the population, only a small fraction of individuals with a particular risk factor will die from suicide.

Risk factors for suicide attempts, which overlap with but are not identical to risk factors for suicide, will also be identified in the assessment process. These factors should also be addressed in the treatment planning process, since suicide attempts themselves are associated with morbidity in addition to the added risk that they confer for suicide.

1. Demographic factors

In epidemiologic studies, a number of demographic factors have been associated with increased rates of suicide. However, these demographic characteristics apply to a very broad population of people and cannot be considered alone. Instead, such demographic parameters must be considered within the context of other interacting factors that may influence individual risk.

TABLE 4. Factors Associated With an Increased Risk for Suicide

Suicidal thoughts/behaviors
- Suicidal ideas (current or previous)
- Suicidal plans (current or previous)
- Suicide attempts (including aborted or interrupted attempts)
- Lethality of suicidal plans or attempts
- Suicidal intent

Psychiatric diagnoses
- Major depressive disorder
- Bipolar disorder (primarily in depressive or mixed episodes)
- Schizophrenia
- Anorexia nervosa
- Alcohol use disorder
- Other substance use disorders
- Cluster B personality disorders (particularly borderline personality disorder)
- Comorbidity of axis I and/or axis II disorders

Physical illnesses
- Diseases of the nervous system
  - Multiple sclerosis
  - Huntington's disease
  - Brain and spinal cord injury
  - Seizure disorders
- Malignant neoplasms
- HIV/AIDS
- Peptic ulcer disease
- Chronic obstructive pulmonary disease, especially in men
- Chronic hemodialysis-treated renal failure
- Systemic lupus erythematosus
- Pain syndromes
- Functional impairment

Psychosocial features
- Recent lack of social support (including living alone)
- Unemployment
- Drop in socioeconomic status
- Poor relationship with family[a]
- Domestic partner violence[b]
- Recent stressful life event

Childhood traumas
- Sexual abuse
- Physical abuse

Genetic and familial effects
- Family history of suicide (particularly in first-degree relatives)
- Family history of mental illness, including substance use disorders

TABLE 4. Factors Associated With an Increased Risk for Suicide *(continued)*

Psychological features
Hopelessness
Psychic pain[a]
Severe or unremitting anxiety
Panic attacks
Shame or humiliation[a]
Psychological turmoil[a]
Decreased self-esteem[a]
Extreme narcissistic vulnerability[a]
Behavioral features
Impulsiveness
Aggression, including violence against others
Agitation
Cognitive features
Loss of executive function[b]
Thought constriction (tunnel vision)
Polarized thinking
Closed-mindedness
Demographic features
Male gender[c]
Widowed, divorced, or single marital status, particularly for men
Elderly age group (age group with greatest proportionate risk for suicide)
Adolescent and young adult age groups (age groups with highest numbers of suicides)
White race
Gay, lesbian, or bisexual orientation[b]
Additional features
Access to firearms
Substance intoxication (in the absence of a formal substance use disorder diagnosis)
Unstable or poor therapeutic relationship[a]

[a]Association with increased rate of suicide is based on clinical experience rather than formal research evidence.

[b]Associated with increased rate of suicide attempts, but no evidence is available on suicide rates per se.

[c]For suicidal attempts, females have increased risk, compared with males.

a) Age

Suicide rates differ dramatically by age. In addition, age-related psychosocial stressors and family or developmental issues may influence suicide risk. The age of the patient can also be of relevance to psychiatric diagnosis, since specific disorders vary in their typical ages of onset.

Between age 10 and 24 years, suicide rates in the general population of the United States rise sharply to approximately 13 per 100,000 in the 20- to 24-year-old age group before essentially plateauing through midlife. After age 70, rates again rise to a high of almost 20 per 100,000 in those over age 80 (Figure 1). These overall figures can be misleading, however, since the age distribution of suicide rates varies as a function of gender as well as with race and ethnicity. For example, among male African Americans and American Indians/Alaska Natives, sui-

TABLE 5. Factors Associated With Protective Effects for Suicide

- Children in the home[a]
- Sense of responsibility to family[b]
- Pregnancy
- Religiosity
- Life satisfaction
- Reality testing ability[b]
- Positive coping skills[b]
- Positive problem-solving skills[b]
- Positive social support
- Positive therapeutic relationship[b]

[a]Except among those with postpartum psychosis or mood disorder.
[b]Association with decreased rate of suicide is based on clinical experience rather than formal research evidence.

cide rates rise dramatically during adolescence, peak in young adulthood, and then fall through mid- and later life. Thus, in adolescence and young adulthood, the suicide rates of African American men are comparable with those of white men, although overall, African American males are half as likely to die from suicide as white males. While suicide rates in many age groups have remained relatively stable over the last 50 years, the rate among adolescents and young adults has increased dramatically, and the rate among the elderly has decreased. Among the 14- to 25-year-old age group, suicide is now the third leading cause of death, with rates that are triple those in the 1950s (12).

Suicide rates are higher in older adults than at any other point in the life course. In 2000 in the United States there were approximately 5,300 suicides among individuals over age 65, a rate of 15.3 per 100,000. Whereas older adults made up 12.6% of the population, they accounted for 18.1% of suicides. In addition, the high suicide rate in those over age 65 is largely a reflection of the high suicide rate in white men, which reaches almost 60 per 100,000 by age 85. While rates in Asian men also increase after age 65 and rates in Asian women increase dramatically after age 80, the rate for all other women is generally flat in late life.

Thoughts of death are also more common in older than in younger adults, but paradoxically, as people age they are less likely to endorse suicidal ideation per se (13). Attempted suicide is also less frequent among persons in later life than among younger age groups (14). Whereas the ratio of attempted suicides to suicides in adolescents may be as high as 200:1, there are as few as one to four attempts for each suicide in later life (15). However, the self-destructive acts that do occur in older people are more lethal. This greater lethality is a function of several factors, including reduced physical resilience (greater physical illness burden), greater social isolation (diminished likelihood of rescue), and a greater determination to die (15). Suicidal elders give fewer warnings to others of their plans, use more violent and potentially deadly methods, and apply those methods with greater planning and resolve (15, 16). Therefore, compared with a suicide attempt in a younger person, a suicide attempt in an older person confers a higher level of future suicide risk.

b) Gender

In virtually all countries that report suicide statistics to the World Health Organization, suicide risk increases with age in both sexes, and rates for men in older adulthood are generally higher than those for women (17). One exception is China, where the suicide rate of women is much greater than that of men (18). In the United States, death by suicide is more frequent in men than in women, with the suicide rate in males approximately four times that in females (Figure 1). In the psychiatric population, these gender differences are also present but are less prominent.

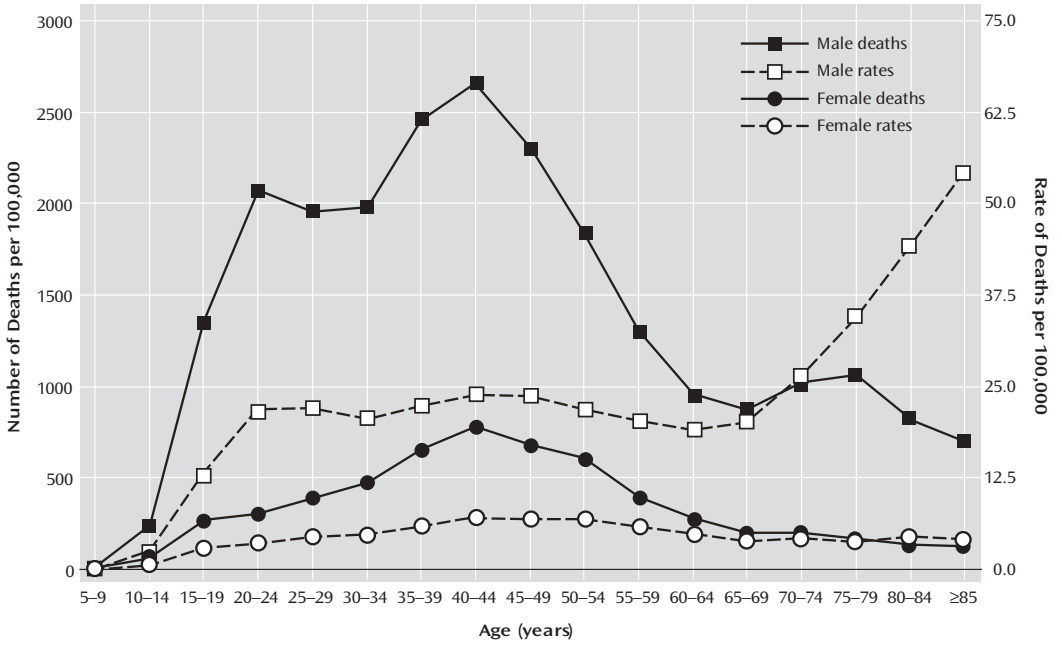

FIGURE 1. Number and Rate of Deaths by Suicide in Males and Females in the United States in 2000, by Age Group[a]

[a]Includes deaths by suicide injury (ICD-10 codes X60–X84, Y87.0). From the Web-Based Injury Statistics Query and Reporting System, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention (11).

In terms of murder-suicide, the male predominance is more pronounced, with identified typologies including young men with prominent sexual jealousy and elderly men with ailing spouses (19, 20). From age 65 on, there are progressive increases in suicide rates for white men and for Asian men as well as for men overall. With the exception of high suicide rates in Asian women over age 80, women in the United States are at highest risk in midlife (11).

A number of factors may contribute to these gender differences in suicide risk (21). Men who are depressed are more likely to have comorbid alcohol and/or substance abuse problems than women, which places the men at higher risk. Men are also less likely to seek and accept help or treatment. Women, meanwhile, have factors that protect them against suicide. In addition to their lower rates of alcohol and substance abuse, women are less impulsive, more socially embedded, and more willing to seek help. Among African American women, rates of suicide are remarkably low, a fact that has been attributed to the protective factors of religion and extended kin networks (22). At the same time, women have higher rates of depression (23) and respond to unemployment with greater and longer-lasting increases in suicide rates than do men (24).

Overall, for women in the general population, pregnancy is a time of significantly reduced suicide risk (25). Women with young children in the home are also less likely to kill themselves (26). Nonetheless, women with a history of depression or suicide attempts are at greater risk for poor outcomes postpartum. Although suicide is most likely to occur in the first month after delivery, risk continues throughout the postpartum period. Teenagers, women of lower socioeconomic status, and women hospitalized with postpartum psychiatric disorders may be at particularly increased risk postpartum (27, 28).

Women tend to choose less lethal suicide methods than men do (e.g., overdose or wrist cutting versus firearms or hanging). Such differences may in part account for the reversal in the gender ratio for suicide attempters, with women being reported to attempt suicide three times as often as men (29). This female predominance among suicide attempters varies with age,

however, and in older adults the ratio of women to men among suicide attempters approaches 1:1 (11, 30). Rates of suicidal ideation and attempts are also increased in individuals with borderline personality disorder and in those with a history of domestic violence or physical and/or sexual abuse, all of which are more common among women (31–36). In addition, the likelihood of suicide attempts may vary with the phase of the menstrual cycle (37, 38).

c) Race, ethnicity, and culture

Variations in suicide rates across racial and ethnic groups have been mentioned earlier in the discussion of the influences of age and gender on suicide risk. Overall, however, in the United States, age-adjusted rates for suicide in whites and in non-Hispanic Native Americans are approximately double those observed in Hispanics, non-Hispanic African Americans, and Asian-Pacific Islanders (12.1 and 13.6 per 100,000 versus 6.1, 5.8, and 6.0 per 100,000, respectively) (11). For immigrant groups, in general, suicide rates tend to mirror the rates in the country of origin and converge toward the rate in the host country over time (39–41).

In the United States, racial and ethnic differences are also seen in the rates of suicide across the lifespan, with the highest suicide rates occurring in those over age 65 among non-Hispanic whites, Hispanics, and Asian-Pacific Islanders (11). In contrast, among Native Americans and African Americans, the highest suicide rates occur during adolescence and young adulthood (11). Such figures may be deceptive, however, since each of these groups exhibits a striking degree of heterogeneity that is rarely addressed in compilations of suicide rates.

Racial and ethnic differences in culture, religious beliefs, and societal position may influence not only the actual rates of suicide but also the views of death and suicide held by members of a particular group. For some groups, suicide can be considered a traditionally accepted way of dealing with shame, distress, and/or physical illness (42). In addition, cultural values about conveying suicidal ideas may differ; in some cultures, for example, suicidal ideation may be considered a disgraceful or private matter that should be denied. Cultural differences, particularly in immigrants and in Native Americans and Alaska Natives, may generate acculturative stresses that in turn may contribute to suicidality (43, 44). Thus, knowledge of and sensitivity to common contributors to suicide in different racial and ethnic groups as well as cultural differences in beliefs about death and views of suicide are important when making clinical estimates of suicide risk and implementing plans to address suicide risk.

d) Marital status

Suicide risk also varies with marital status, with the suicide rate of single persons being twice that of those who are married. Divorced, separated, or widowed individuals have rates four to five times higher than married individuals (45, 46). Variations in suicide rates with marital status may reflect differing rates of baseline psychiatric illness but may also be associated with psychological or health variations. The presence of another person in the household may also serve as a protective factor by decreasing social isolation, engendering a sense of responsibility toward others, and increasing the likelihood of discovery after a suicide attempt. For women, the presence of children in the home may provide an additional protective effect (26, 47). It is also important to note that although married adults have lower rates of suicide overall, young married couples may have increased risk, and the presence of a high-conflict or violent marriage can be a precipitant rather than a protective factor for suicide.

e) Sexual orientation

Although no studies have examined rates of suicide among gay, lesbian, and bisexual individuals, available evidence suggests that they may have an increased risk for suicidal behaviors. Many recent studies involving diverse sample populations and research methods have consistently found that gay, lesbian, and bisexual youths have a higher risk of suicide attempts than matched heterosexual comparison groups (48–53). The female-to-male ratio for reported suicide attempts in the general population is reversed in lesbian and gay youths, with more males

than females attempting suicide (48). While some risk factors leading to suicide, such as psychiatric and substance use disorders, are shared by both gay, lesbian, and bisexual youths and heterosexual youths, others are unique to being gay, lesbian, or bisexual (e.g., disclosure of sexual orientation to friends and family, experience of homophobia and harassment, and gender nonconformity). Aggressive treatment of psychiatric and substance use disorders, open and nonjudgmental support, and promotion of healthy psychosocial adjustment may help to decrease the risk for suicide in gay, lesbian, and bisexual youths and adults.

f) Occupation

Occupational groups differ in a number of factors contributing to suicide risk. These factors include demographics (e.g., race, gender, socioeconomic class, marital status), occupational stress (54, 55), psychiatric morbidity (56), and occupationally associated opportunities for suicide (56, 57). Physicians have been consistently found to be at higher risk for suicide than persons in other occupations including professionals (57, 58). After basic demographic correlates of suicide across 32 occupations were controlled, risk was found to be highest among dentists and physicians (with multivariate logistic regression odds ratios of 5.43 and 2.31, respectively) and was also increased among nurses, social workers, artists, mathematicians, and scientists (54). Although evidence is more varied, farmers may be at somewhat higher risk, whereas risk in police officers generally does not appear to differ from that of age- and sex-matched comparison subjects (54, 57).

2. Major psychiatric syndromes

The presence of a psychiatric disorder is probably the most significant risk factor for suicide. Psychological autopsy studies have consistently shown that more than 90% of persons who die from suicide satisfy the criteria for one or more psychiatric disorders (59, 60). The psychological autopsy method involves a retrospective investigation of the deceased person, within several months of death, and uses psychological information gathered from personal documents; police, medical, and coroner records; and interviews with family members, friends, co-workers, school associates, and health care providers to classify equivocal deaths or establish diagnoses that were likely present at the time of suicide (61–63).

In addition to there being high rates of psychiatric disorder among persons who die by suicide, almost all psychiatric disorders with the exception of mental retardation have been shown to increase suicide risk as measured by standardized mortality ratios (SMRs) (64) (Table 6). An SMR reflects the relative mortality from suicide in individuals with a particular risk factor, compared with the general population. Thus, the SMR will be equal to 1.0 when the number of observed suicide deaths is equivalent to the number of expected deaths by suicide in an age- and sex-matched group in the general population. Values of the SMR for suicide that are greater than 1.0 indicate an increased risk of suicide, whereas values less than 1.0 indicate a decreased risk (i.e., a protective effect). It is also important to note that SMRs do not correspond precisely to the incidence or prevalence of suicide and may vary in their reliability depending on the number of suicides in the sample, the time period of the study, and the representativeness of the study population. Thus, SMRs should be viewed as estimates of relative risk and not as reflections of absolute risk for individuals with a particular disorder. It is equally necessary to appreciate distinctions in risk across disorders and variations in risk at differing points in the illness course in the effort to differentiate high-risk patients within an overall at-risk population identified in terms of standardized mortality.

a) Mood disorders

Study after study has confirmed that the presence of a major mood disorder is a significant risk factor for suicide. Not surprisingly, mood disorders, primarily in depressive phases, are the diagnoses most often found in suicide deaths (59, 65–67). Although most suicides in individuals

TABLE 6. Risk of Suicide in Persons With Previous Suicide Attempts and Psychiatric Disorders[a]

Condition	Number of Studies	Standardized Mortality Ratio (SMR)[b]	Annual Suicide Rate (%)	Estimated Lifetime Suicide Rate (%)
Previous suicide attempts	9	38.4	0.549	27.5
Psychiatric disorders				
Eating disorders	15	23.1		
Major depression	23	20.4	0.292	14.6
Sedative abuse	3	20.3		
Mixed drug abuse	4	19.2	0.275	14.7
Bipolar disorder	15	15.0	0.310	15.5
Opioid abuse	10	14.0		
Dysthymia	9	12.1	0.173	8.6
Obsessive-compulsive disorder	3	11.5	0.143	8.2
Panic disorder	9	10.0	0.160	7.2
Schizophrenia	38	8.45	0.121	6.0
Personality disorders	5	7.08	0.101	5.1
Alcohol abuse	35	5.86	0.084	4.2
Pediatric psychiatric disorders	11	4.73		
Cannabis abuse	1	3.85		
Neuroses	8	3.72		
Mental retardation	5	0.88		

[a]Based on a meta-analysis by Harris and Barraclough (64) of 249 reports published between 1966 and 1993. Table adapted with permission.

[b]The SMR is the ratio of the observed mortality to the expected mortality and approximates the risk of mortality resulting from suicide in the presence of a particular condition. For the general population, the value of the SMR is 1.0, with an annual suicide rate of 0.014% per year and a lifetime rate of 0.72%.

with bipolar disorder occur during depressive episodes, mixed episodes are also associated with increased risk (68–70). Suicidal ideation and attempts are also more common during mixed episodes than in mania (71).

When viewed from the standpoint of lifetime risk, mood disorders are associated with an increased risk of mortality that has been estimated to range from a 12-fold increase in risk with dysthymia to a 20-fold increase in risk with major depression (64). Lifetime suicide risk in bipolar disorder has generally been found to be similar to that in unipolar major depression (69, 72). However, several longitudinal studies of patients followed after an index hospitalization have demonstrated suicide risks in patients with major depressive disorder that are greater than those in patients with either bipolar I disorder or bipolar II disorder (73–75).

Particularly for younger patients, suicides are more likely to occur early in the course of illness (68, 73, 75, 76). Nonetheless, risk persists throughout life in major depressive disorder as well as in bipolar disorder (73, 74). Suicide risk also increases in a graduated fashion with illness severity as reflected by the level of required treatment. Lifetime suicide rates in psychiatric outpatients ranged from 0.7% for those without an affective disorder to 2.2% for those with affective disorders, whereas lifetime suicide rates for individuals requiring hospitalization ranged from 4% for those whose admission for depression was not prompted by suicidal behavior or risk to 8.6% for those whose admission was the result of suicidality (77). Illness severity may also be an indicator of risk for suicide attempts (75, 78).

Among patients with mood disorders, lifetime risk also depends on the presence of other psychiatric symptoms or behaviors, some of which are modifiable with treatment. For example, pa-

tients with mood disorders who died by suicide within 1 year of initial evaluation were more likely to have panic attacks, severe psychic anxiety, diminished concentration, global insomnia, moderate alcohol abuse, and severe loss of pleasure or interest in activities (79). At later time points, hopelessness has been associated with increased suicide risk in mood disorder patients (78, 79). Suicidal ideation and a history of suicide attempts also augment risk (74, 79). Comorbid anxiety, alcohol use, and substance use are common in patients with mood disorders and may also increase the risk of suicide and suicide attempts (see Sections II.E.2.f, "Alcohol Use Disorders," and II.E.2.g, "Other Substance Use Disorders"). Although a greater risk for suicide or suicidal behaviors among patients with psychotic mood disorders has been seen in some studies (80–83), this relationship has not been found in other studies (84–88).

b) Schizophrenia

Compared to the risk in the general population, the risk of suicide in patients with schizophrenia is estimated to be about 8.5-fold higher (64), with even greater increments in risk in patients who have been hospitalized (89). Although earlier research suggested a 10%–15% lifetime risk of suicide among patients with schizophrenia (90–93), such estimates were likely inflated by biases in the patient populations and length of follow-up. More recent estimates suggest a lifetime risk of suicide in schizophrenia of about 4% (94).

Suicide may occur more frequently during the early years of the illness, with the time immediately after hospital discharge being a period of heightened risk (83, 89, 90, 95–98). However, risk continues throughout life (99, 100) and appears to be increased in those with a chronic illness course (83, 89, 101), multiple psychiatric hospitalizations (89, 95), or a previous suicide attempt (89, 90, 95, 100). Other consistently identified factors that confer an increased risk of suicide in patients with schizophrenia include male sex (83, 89, 90, 95, 102, 103), younger age (<30 years) (83, 90, 102), and social isolation (97, 104).

In individuals with schizophrenia or schizoaffective disorder, psychotic symptoms are often present at the time of a suicide attempt or suicide (105–107). However, command hallucinations seem to account for a relatively small percentage of suicides, and there is limited evidence on whether they increase suicide risk. Nonetheless, they may act as a precipitant to a suicide attempt or to suicide in some individuals (106, 108) (see Section II.E.3.c, "Command Hallucinations"). Suicide in patients with schizophrenia may be more likely to occur during periods of improvement after relapse or during periods of depressed mood (83, 89, 90, 95, 100, 109–111), including what has been termed postpsychotic depression (112, 113). Also, patients with schizoaffective disorder appear to be at greater risk for suicide than those with schizophrenia (114).

Suicide risk may paradoxically be increased in those who have insight into the implications of having a schizophrenic illness, particularly if this insight is coupled with a feeling of hopelessness. Suicide risk is also increased in those who recognize a loss of previous abilities and are pessimistic about the benefits of treatment in restoring those abilities (93, 101, 115). This pattern is consistent with the increased risk of suicide observed in individuals with schizophrenia who had a history of good premorbid and intellectual functioning (83, 89, 103) as well as with the decreased risk of suicide in patients with prominent negative symptoms (83, 89, 103, 116).

Suicidal ideation and suicide attempts are common among individuals with schizophrenia and need to be identified and addressed in the assessment process. In series of hospitalized or longitudinally followed patients with schizophrenia, 40%–53% reported having suicidal ideation at some point in their lives and 23%–55% reported prior suicide attempts (80, 93, 108, 117). For individuals with schizoaffective disorder, these figures are likely to be even higher (80). Patients often reported that suicide attempts were precipitated by depression, stressors, or psychotic symptoms (108). In addition, suicide attempts among individuals with schizophrenia or schizoaffective disorder were often medically serious and associated with a high degree of intent (108), both of which would confer greater future risk for suicide.

c) Anxiety disorders

Although studies of lifetime suicide risk in anxiety disorders are more limited than for mood disorders, evidence suggests anxiety disorders are associated with a six- to 10-fold increase in suicide risk (64, 118, 119). Among persons who die from suicide, rates of anxiety disorders appear to be lower than rates of mood disorders, with one psychological autopsy study identifying an anxiety disorder in only 11% of persons who died from suicide (120). However, the prevalence of anxiety disorders may be underestimated because of the masking of anxiety by affective disorders and by alcohol use (121).

Of the anxiety disorders, panic disorder has been studied in the most detail. In psychological autopsy studies, panic disorder is present in about 1% of persons who die from suicide (120), whereas other studies of panic disorder show an SMR for suicide that is about 10 times that of the general population (64). As with anxiety disorders in general, comorbid depression, alcohol use, or axis II disorders are often present in individuals with panic disorder who die by suicide (122, 123).

Suicidal ideation and suicide attempts are common in individuals with anxiety disorders, but their rates vary with the patient population and with the presence of comorbid diagnoses. In panic disorder, for example, reported rates of prior suicide attempts range from 0% to 42% (124–129). In other anxiety disorders, the relative risks of suicidal ideation and suicide attempts also appear to be increased (118, 130). In addition, in patients with major depression, the presence of a comorbid anxiety disorder appears to increase the risk of suicidal ideation or suicide attempts (131, 132). Less clear, however, is whether anxiety disorders are associated with an increased risk for suicide and other suicidal behaviors in the absence of comorbid diagnoses (130, 132–136) or whether the observed increases in risk can be accounted for solely on the basis of comorbid disorders (127, 137). Nonetheless, suicide risk may be diminished by identifying masked anxiety symptoms and anxiety disorders that are misdiagnosed as medical illness as well as by explicitly assessing and treating comorbid psychiatric diagnoses in individuals with anxiety disorders.

d) Eating disorders

Eating disorders, particularly anorexia nervosa, are a likely risk factor for suicide as well as being associated with an increased risk of mortality in general (64, 138, 139). Exact risk is difficult to determine, however, as data on rates of suicide in eating disorders may be subject to underreporting bias (140). Suicide attempts are also common, particularly in individuals with bingeing and purging behaviors and in those with comorbid mood disorders, aggression, or impulsivity (141, 142). Conversely, suicide attempters may have increased rates of abnormal eating behaviors (142). The role of comorbid diagnoses in increasing the risk of suicidal behaviors remains to be delineated. It is also not clear whether the self-imposed morbidity and mortality associated with severe caloric restriction or bingeing and purging should be viewed as a self-injurious or suicidal behavior. Regardless, clinicians conducting a suicide risk assessment should be attentive to the presence of eating disorders and especially the co-occurrence of eating disorders with behaviors or symptoms such as deliberate self-harm or depression.

e) Attention deficit hyperactivity disorder

The relationship between attention deficit hyperactivity disorder (ADHD) and suicidal behavior is unclear, with some studies indicating an association between the diagnosis of ADHD and suicide attempts or completions (143, 144) and other studies indicating no such connection (145, 146). However, individuals with ADHD, combined type, may be at greater risk than those with ADHD, inattentive type, perhaps because of an increased level of impulsivity in the combined type of the disorder (144). In addition, the presence of ADHD may increase suicide risk through comorbidity with conduct disorder, substance abuse, and/or depressive disorder (143).

f) Alcohol use disorders

Alcoholism is associated with an increased risk for suicide, with suicide mortality rates for alcoholics that are approximately six times those of the general population (64, 94). In fact, abuse of substances including alcohol may be the second most frequent psychiatric precursor to suicide (147). Although suicide rates among alcoholics are higher in Europe and older literature indicated a lifetime risk for suicide in the 11%–15% range, recent literature suggests the lifetime risk of suicide among alcoholics in the United States is as low as 3.4% (148). In addition, in psychological autopsy studies, alcohol abuse or dependence is present in 25%–50% of those who died by suicide (59, 149–151).

Several factors, including recent or impending interpersonal losses and comorbid psychiatric disorders, have been specifically linked to suicide in alcoholic individuals. The loss or disruption of a close interpersonal relationship or the threatened loss of such a relationship may be both a consequence of alcohol-related behavior and a precipitant to suicide (110, 152–154). Suicide is also more likely to occur among alcoholics who suffer from depressive episodes than in persons with major depression or alcoholism alone. In addition, studies have found major depressive episodes in half to three-fourths of alcoholics who die by suicide (67, 120, 149, 152, 155–157). As a result, psychiatrists should systematically rule out the presence of a comorbid depressive disorder and not simply assume that depressive symptoms result from alcohol use or its psychosocial consequences.

Whereas full-time employment appears to be a protective factor in alcoholics, factors that increase suicide risk include communications of suicidal intent, prior suicide attempts, continued or heavier drinking, recent unemployment, living alone, poor social support, legal and financial difficulties, serious medical illness, other psychiatric disorders, personality disturbance, and other substance use (64, 149, 152, 154, 156, 158, 159). In terms of gender, alcoholic men are more likely to die by suicide, but female alcoholics appear to have a greater standardized mortality due to suicide than men (64), indicating an increased risk of suicide in alcoholics regardless of gender. While the likelihood of a suicidal outcome increases with the total number of risk factors (149, 160), not all of these factors suggest an immediate risk. In fact, in contrast to suicide in depressed and schizophrenic patients, suicide in alcoholics appears to be a relatively late sequela of the disease (161), with communications of suicidal intent usually being of several years' duration and health, economic, and social functioning showing a gradual deterioration (149).

In addition to being associated with an increased risk of suicide, alcohol use disorders are associated with a greater likelihood of suicide attempts (162, 163). For suicide attempts among alcoholics, greater rates are associated with female sex, younger age, lower economic status, early onset of heavy drinking and alcohol-related problems, consumption of greater amounts of alcohol when drinking, and having a first- or second-degree relative who abused alcohol (164–167). The risk of suicide attempts among alcoholics is also increased by the presence of a comorbid psychiatric diagnosis, particularly major depression, other substance use disorders, antisocial personality disorder, or an anxiety disorder (165–171).

Thus, individuals with alcohol use disorders are at increased risk for suicide attempts as well as for suicide. Family histories of alcoholism and comorbid psychiatric disorders, particularly mood disorders and other substance use disorders, are frequent in alcoholics who die by suicide and who attempt suicide. Interpersonal loss and other adverse life events are commonly noted to precede suicide in alcoholics. These factors may act as precipitants, or, conversely, alcohol use disorders may have a deteriorating effect on the lives of alcoholics and culminate in suicide. Together, however, these findings suggest the need to identify and address comorbid psychiatric diagnoses, family history, and psychosocial factors, including recent interpersonal losses, as part of the suicide assessment of persons with alcohol use disorders.

g) Other substance use disorders

Although the role of alcoholism in suicide has been widely studied and recognized, abuse of other substances is also associated with increased rates of suicide (172). Substance use disorders are particularly common among adolescents and young adults who die by suicide (110, 145, 173, 174). In fact, it has been suggested that the spread of substance abuse may have contributed to the two- to fourfold increase in youth suicide since 1970 (147). For many individuals, substance abuse and alcoholism are co-occurring, making it difficult to distinguish the contributions of each to rates of suicide (153, 172, 173). In addition, other comorbid psychiatric disorders, particularly mood disorders and personality disorders, may add to the risk of suicide in patients with substance use disorders (145, 173–175).

Substance use disorders also seem to make an independent contribution to the likelihood of making a suicide attempt (176, 177). In addition, a history of suicide attempts is common among individuals with substance use disorders (31, 178–180). Even after other factors, including comorbid psychiatric disorders and demographic characteristics, are controlled, it is the number of substances used, rather than the type of substance, that appears to be important (176). As with suicide in individuals with alcohol use disorders, the loss of a significant personal relationship is a common precipitant for a suicide attempt (179). Suicide attempts are also more likely in individuals with substance abuse who also have higher childhood trauma scores for emotional neglect (180, 181). Moreover, a substance use disorder may complicate mood disorders (182), increasing susceptibility to treatment resistance, increasing psychological impairment, and contributing to an elevated risk for suicide attempts. Thus, it is important to identify patterns of substance use during the psychiatric evaluation and to note comorbid psychiatric diagnoses or psychosocial factors that may also affect the likelihood of suicidal behaviors among individuals with substance use disorders.

h) Personality disorders

Diagnoses of personality disorders have been associated with an increased risk for suicide, with estimated lifetime rates of suicide ranging from 3% to 9% (183–185). Compared with the general population, individuals with personality disorders have an estimated risk for suicide that is about seven times greater (64). Specific increases in suicide risk have been associated with borderline and antisocial personality disorders, with possible increases in risk associated with avoidant and schizoid personality disorders (186). Psychological autopsy studies have shown personality disorders to be present in approximately one-third of those who die by suicide (174, 183, 186, 187). Among psychiatric outpatients, personality disorders are present in about one-half of patients who die by suicide (78, 188).

In individuals with personality disorders, suicide risk may also be increased by a number of other factors, including unemployment, financial difficulty, family discord, and other interpersonal conflicts or loss (189, 190). In individuals with borderline personality disorder, in particular, impulsivity may also increase suicide risk (185).

Although comorbid diagnoses do not account for the full increase in suicide risk with personality disorders (184, 185), comorbid diagnoses are frequent and augment suicide risk. In fact, for individuals with personality disorders, concurrent depressive symptoms or substance use disorders are seen in nearly all individuals who die by suicide (187).

Among individuals who attempt suicide, diagnoses of personality disorders are also common, with overall rates of about 40% (31, 177, 184). Individuals with personality disorders tend to attempt suicide more often than individuals with other diagnoses (191–193), with 40%–90% of individuals with personality disorders making a suicide attempt during their lifetime (184). Comorbid psychiatric diagnoses, including mood disorders and substance use disorders, are quite prevalent among suicide attempters with personality disorders and independently contribute to risk (131, 184, 191, 192, 194, 195). Impulsivity has also been shown to increase the risk of suicide attempts in some (196, 197) but not all studies (191). Rates of

suicide attempts in those with personality disorder may also vary with treatment setting, with greater risk in individuals who are receiving acute inpatient treatment (198).

Of personality disorder diagnoses, borderline personality disorder and antisocial personality disorder confer an added risk of suicide attempts (31, 177, 191, 193). In individuals with borderline personality disorder, there is some evidence of increased risk being associated with the number and severity of symptoms (195). Among female suicide attempters, rates of borderline personality disorder are higher than among male suicide attempters (199, 200). These findings suggest that personality disorders, particularly borderline personality disorder and antisocial personality disorder, should be identified and addressed as part of the suicide assessment process.

i) Comorbidity

As discussed in preceding sections, comorbid psychiatric diagnoses (most commonly, major depression, borderline and antisocial personality disorders, and alcohol and other substance use disorders) increase suicide risk and are often present in individuals who die by suicide (13, 59, 120, 174, 201). Comorbid medical diagnoses may also increase suicide risk, as will be discussed in Section II.E.5, "Physical Illness." In general, the greater the number of comorbid diagnoses that are present, the greater will be the increase in risk. Furthermore, even in the absence of a formal comorbid diagnosis, suicide is more likely to occur when there are high levels of additional psychiatric symptoms (67, 185, 202–204).

In patients with a mood disorder, either bipolar disorder or major depression, the risk of suicide is particularly increased in the presence of comorbid alcohol or substance use (68, 205–207), with some studies suggesting that males are at additional risk (68, 205). Comorbid alcohol use may also increase suicide risk in patients with schizophrenia (107). In addition, suicide in schizophrenia may be more likely to occur during periods of depression (83, 90, 109–113). In anxiety disorders and particularly in panic disorder, individuals who die by suicide often have experienced comorbid depression, alcohol use, or axis II disorders (122, 123). Similarly, when suicide occurs in individuals with eating disorders, it is often associated with a comorbid mood disorder or substance use disorder (138).

For individuals with alcohol use disorders, major depression is found in half to three-fourths of individuals who die by suicide (67, 120, 149, 152, 155–157), and alcoholics who suffer from depressive episodes are more likely to die from suicide than persons with major depression or alcoholism alone. Serious medical illness and other psychiatric disorders, including personality disturbance and other substance use disorders, also increase suicide risk in alcoholics (64, 149, 152, 154, 156, 158, 159). For many individuals, substance abuse and alcoholism are co-occurring, making it difficult to distinguish the contributions of each to rates of suicide (153, 172, 173, 208). Furthermore, it appears to be the number of substances used, rather than the specific substance, that determines risk (176).

Individuals who die by suicide and who abuse or are dependent on substances other than alcohol are typically adolescents or young adults. Comorbid mood disorders are commonly seen in both males and females (66, 145, 204). In addition, borderline personality disorder is relatively frequent in females with substance use disorders (175), whereas young males with substance use disorders who die by suicide more commonly have comorbid antisocial personality disorder (120, 159, 173, 204). The presence of ADHD may increase suicide risk through comorbidity with conduct disorder, substance abuse, and/or depressive disorder (143). For individuals with personality disorders, concurrent depressive symptoms or substance use disorders augment suicide risk (184, 185, 209, 210) and are seen in nearly all suicides (187).

Comorbid diagnoses are also essential to identify and address because of their role in increasing the risk of suicide attempts (199). Furthermore, the likelihood of a suicide attempt appears to increase with an increasing number of comorbid diagnoses (166, 176, 177, 211). In addition, the number and severity of symptoms may play a role in increasing risk, regardless of whether the full criteria for a separate diagnosis are met. The specific comorbid disorders that

augment the risk of suicide attempts are similar to those that are commonly seen to augment the risk of suicide and include comorbid depression (129, 131, 193, 195, 197, 211), alcohol and other substance use disorders (31, 129, 167, 168, 170, 180, 182, 191, 199, 211–214), anxiety disorders (127, 130–135, 137, 211, 215), and personality disorders (184, 191), particularly borderline personality disorder (31, 195, 200) and antisocial personality disorder (165, 204, 216). Thus, given the evidence that comorbidity increases the risks for suicide and for suicide attempts, the suicide risk assessment should give strong consideration to all current and previous psychiatric diagnoses.

3. Specific psychiatric symptoms

a) Anxiety

Anxiety appears to increase the risk for suicide (79, 217, 218). Specifically implicated has been severe psychic anxiety consisting of subjective feelings of fearfulness or apprehension, whether or not the feelings are focused on specific concerns. Clinical observation suggests that anxious patients may be more inclined to act on suicidal impulses than individuals whose depressive symptoms include psychomotor slowing. Studies of suicide in patients with affective disorders have shown that those who died by suicide within the first year after contact were more likely to have severe psychic anxiety or panic attacks (79, 219). In an inpatient sample, severe anxiety, agitation, or both were found in four-fifths of patients in the week preceding suicide (218). Similar associations of anxiety with suicide attempts have been noted in some (212) but not all (220) studies. Since severe anxiety does seem to increase suicide risk, at least in some subgroups of patients, anxiety should be viewed as an often hidden but potentially modifiable risk factor for suicide (109). Once identified, symptoms of anxiety can be addressed with psychotherapeutic approaches and can also respond rapidly to aggressive short-term treatment with benzodiazepines, second-generation antipsychotic medications, and possibly anticonvulsant medications.

b) Hopelessness

Hopelessness is well established as a psychological dimension that is associated with increased suicide risk (10, 78, 79, 217, 221–223). Hopelessness may vary in degree from having a negative expectation for the future to being devoid of hope and despairing for the future. In general, patients with high levels of hopelessness have an increased risk for future suicide (78, 221–225). However, among patients with alcohol use disorders, the presence of hopelessness may not confer additional risk (226, 227). For patients with depression, hopelessness has been suggested to be the factor that explains why some patients choose suicide, whereas others do not (222). Hopelessness also contributes to an increased likelihood of suicidal ideation (192, 228) and suicide attempts (197, 212, 229–231) as well as an increased level of suicidal intent (197, 232, 233).

Hopelessness often occurs in concert with depression as a "state-dependent" characteristic, but some individuals experience hopelessness on a primary and more enduring basis (221). High baseline levels of hopelessness have also been associated with an increased likelihood of suicidal behaviors (234). However, patients experiencing similar levels of depression may have differing levels of hopelessness (222), and this difference, in turn, may affect their likelihood of developing suicidal thoughts (228). Whatever the source or conceptualization of hopelessness, interventions that reduce hopelessness may be able to reduce the potential for suicide (10, 222, 235–237).

c) Command hallucinations

Command hallucinations, which order patients to carry out tasks or actions, can occur in individuals with psychotic disorders, primarily schizophrenia (238). Evidence for the association of command hallucinations with suicide is extremely limited (102, 239). The presence of auditory command hallucinations in inpatients does not appear to increase the likelihood of assaultiveness or of suicidal ideation or behavior over that associated with auditory hallucinations

alone (240). Furthermore, in patients who do experience auditory command hallucinations, reported rates of compliance with commands vary widely from 40% to 84% (106, 241–244). Variables that have been associated with a propensity to obey command hallucinations include being able to identify the hallucinatory voice, having more severe psychotic disturbance, having a less dangerous command, and experiencing the commands for the first time or outside of a hospital environment (241, 242, 245). Thus, at least for some individuals, suicidal behaviors can occur in response to hallucinated commands, and individuals with prior suicide attempts may be particularly susceptible (106). Consequently, in the psychiatric evaluation, it is important to identify auditory command hallucinations, assess them in the context of other clinical features, and address them as part of the treatment planning process.

d) Impulsiveness and aggression

Impulsivity, hostility, and aggression may act individually or together to increase suicide risk. For example, many studies provide moderately strong evidence for the roles of impulsivity and hostility-related affects and behavior in suicide across diagnostic groups (89, 217, 246–248). Multiple other studies have also demonstrated increased levels of impulsivity and aggression in individuals with a history of attempted suicide (31, 193, 197, 212, 220, 249–252). Many patients with borderline personality disorder exhibit self-mutilating behaviors, and, overall, such behaviors are associated with increased impulsivity (251). However, for many self-mutilating patients, these behaviors are premeditated rather than impulsive (253). Consequently, self-mutilatory behaviors alone should not be regarded as an indicator of high impulsivity. Moreover, measures of aggression and impulsivity are not highly correlated (253), making aggression a poor marker of impulsivity as well. Thus, impulsivity, hostility, aggression, and self-mutilating behaviors should be considered independently in the psychiatric evaluation as well as in estimating suicide risk.

4. Other aspects of psychiatric history

a) Alcohol intoxication

In addition to the increased suicide risk conferred by alcohol abuse or dependence, intoxication itself appears to play a role in alcoholic as well as nonalcoholic populations (254). Autopsies have found alcohol to be present in 20%–50% of all persons who die by suicide (121, 255). Those who consume alcohol before suicide are more likely to have experienced a recent breakup of an interpersonal relationship but less likely to have sought help before death (255). They are also more likely to have chosen a firearm as a suicide method (151, 256, 257). Alcohol intoxication at the time of suicide may also be more common in younger individuals (154, 255, 258), in men (121, 255), and in individuals without any lifetime history of psychiatric treatment (154). Among suicide attempters who later died by suicide, alcohol appeared to contribute to death in more than a third (259). In addition, a study of the interaction of employment and weekly patterns of suicide emphasizes the role of intoxication in suicides and indicates that employment may be a stabilizing factor that curbs heavy drinking during the work week (260), thereby decreasing rates of suicide. Consequently, in some subsets of patients, alcohol consumption appears to contribute to the decision to die by suicide (255).

Alcohol use is also a common prelude to suicide attempts (258). Some estimates show that more than 50% of individuals have used alcohol just before their suicide attempt. Among alcoholics, heavier drinking adds to risk (64, 149, 165). Suicide attempts that involve alcohol are more likely to be impulsive (258). Indeed, the majority of acutely intoxicated alcoholics either did not remember the reason for their attempt or had done it on a sudden impulse (258). Thus, alcohol consumption may make intervention more difficult by simultaneously limiting the communication of intent (255, 261), increasing impulsivity, decreasing inhibition, and impairing judgment (262).

Alcohol use in conjunction with attempted suicide is more common in men than in women (258), although among younger attempters, females may be more likely than males to consume

alcohol (258). Alcohol use in conjunction with a suicide attempt has also been associated with repeated suicide attempts and future suicide (263). In some individuals, intentionally drinking to overcome ambivalence about suicide may signify serious suicidal intent. Thus, since intoxication is a risk factor for suicide attempts as well as for suicide, the clinician should inquire about a patient's drinking habits and consider the effect of alcohol intoxication when estimating suicide risk.

b) Past suicide attempts

Individuals who have made a suicide attempt constitute a distinct but overlapping population with those who die by suicide. As with individuals who die by suicide, a high preponderance of suicide attempters have one or more axis I or II diagnoses, with major depression and alcohol dependence observed most commonly for axis I and borderline personality disorder observed most commonly for axis II (199, 200, 264). However, suicide attempts are about 10–20 times more prevalent than suicide (265), with lifetime prevalence ranging from 0.7% to 6% per 100,000 in a random sample of U.S. adults (2). Although a substantial percentage of individuals will die on their initial suicide attempt (266), a past suicide attempt is one of the major risk factors for future suicide attempts (164, 267) and for future suicide (64, 78, 79, 266, 268–271).

After a suicide attempt, there can be significant mortality from both natural and unnatural causes (259, 272). A suicide attempt by any method is associated with a 38-fold increase in suicide risk, a rate that is higher than that associated with any psychiatric disorder (64). Depending on the length of the follow-up, from 6% to 27.5% of those who attempt suicide will ultimately die by suicide (64, 273), and similar results have been suggested for acts of deliberate self-harm (274). Some studies have found that suicide risk appears to be particularly high during the first year after a suicide attempt (259, 275). An additional increase in risk may be associated with aborted suicide attempts (276, 277) or repeated suicide attempts (64, 259, 263, 272, 274, 278). Thus, the increase in suicide mortality subsequent to attempted suicide emphasizes the need for aftercare planning in this heterogeneous population.

In the context of a suicide attempt, a number of other factors are associated with increases in suicide risk. For example, risk is augmented by medical and psychiatric comorbidity, particularly comorbid depression, alcohol abuse, or a long-standing medical illness (64). Low levels of social cohesion may also increase risk (64). Risk of later suicide in males, particularly younger males, appears to be two to four times greater than that in females after a suicide attempt (275). In addition, serious suicide attempts are associated with a higher risk of eventual suicide, as are having high intent (164), taking measures to avoid discovery, and using more lethal methods that resulted in physical injuries (263).

Given this increased likelihood of additional suicide attempts and suicide deaths after a suicide attempt or aborted suicide attempt, psychiatric evaluation should be incorporated into emergency medical assessments of suicide attempters (279) and the importance of follow-up should be emphasized (2, 280).

c) History of childhood physical and/or sexual abuse

A history of childhood abuse has been associated with increased rates of suicidal behaviors in multiple studies. Rates of suicide in individuals with a history of childhood abuse have not been widely studied, but available evidence suggests that suicide rates are increased at least 10-fold in those with a history of childhood abuse (36). In addition, a number of studies have demonstrated that individuals with a history of childhood abuse have an increased risk of suicide attempts (230, 281–283), suggesting that risk of later suicide will also be increased. Rates of suicide attempts are increased in individuals who report experiencing childhood physical abuse (196, 250, 284–290) as well as in individuals who report experiencing childhood sexual abuse (33, 35, 36, 164, 196, 250, 284, 285, 288–294). Rates of suicidal ideation are similarly increased in individuals with a childhood history of abuse (284).

Since many traumatized individuals have experienced both sexual and physical abuse during childhood, it is often difficult to establish the specific contributions of each form of abuse to the risk of suicide and other suicidal behaviors. In addition, the duration and severity of childhood abuse vary across individuals and can also influence risk. It appears, however, that the risk of suicide attempts is greater in individuals who have experienced both physical and sexual abuse in childhood (288) and that greater levels of risk are associated with increasing abuse severity (285, 286, 291).

Childhood trauma can also be associated with increased self-injurious behaviors, including self-cutting and self-mutilation, without associated suicidal intent. Sexual abuse may be a particular risk factor for such behaviors, which can often become repetitive (164). Indeed, deliberate self-harm is common in patients with posttraumatic stress disorder and other traumatic disorders and serves to reduce internal tension and provide nonverbal communication about their self-hate and intense distress (295). As a result, inquiring about the motivations of self-injurious behavior may help to inform estimates of suicide risk.

Gender may also influence the risk of suicidal behaviors in those with a history of childhood abuse. This influence, in part, relates to differences in the prevalence of childhood abuse between men and women, with rates of childhood physical abuse being higher in men and rates of childhood sexual abuse being higher in women (288). However, in individuals who have a history of childhood sexual abuse, the risk of a suicide attempt may be greater in men than in women (33).

Given the significant rates of childhood physical and/or sexual abuse, particularly among psychiatric patient populations (35, 284, 288, 292), and the increased risk for suicidal behaviors that such abuse confers, it important to assess for a history of physical abuse and sexual abuse as part of the psychiatric evaluation. In addition, the duration and severity of childhood abuse should be determined, as these factors will also influence risk.

d) History of domestic partner violence

Domestic partner violence has been associated with increased rates of suicide attempts and suicidal ideation; however, there is no information about its effects on risk for suicide per se. The risk for suicide attempts in individuals who have experienced recent domestic partner violence has been estimated to be four- to eightfold greater than the risk for individuals without such experiences (34, 296–300). Conversely, among women presenting with suicide attempts, there is a severalfold increase in their risk for experiencing domestic partner violence (230, 301).

Although much more commonly experienced by women, domestic partner violence is also experienced by men and can increase their risk for suicide attempts (302). Men with a history of domestic violence toward their partners may also be at increased risk for suicide (303). Furthermore, domestic violence in the home may increase the risk for suicide attempts among children who are witnesses to such violence (281).

Given the clear increase in risk for suicide attempts in individuals experiencing domestic partner violence and the likely association of suicide attempts with an increased risk for suicide, it is important to specifically ask about domestic partner violence as a part of the suicide assessment. Such inquiry may also help to identify individuals in addition to the identified patient who may be at increased risk for suicidal behaviors.

e) Treatment history

Multiple studies have shown that greater treatment intensity is associated with greater rates of eventual suicide (64, 77, 198). Although hospitalization generally occurs because a patient has a more severe illness and is deemed to be at increased risk for suicide, for some patients, hospitalization could conceivably result in increased distress and thus an increase in suicide risk. Thus, as a general rule, a past history of treatment, including a past history of hospitalization, should be viewed as a marker that alerts the clinician to increased suicide risk.

Temporally, the risk for suicide appears to be greatest after changes in treatment setting or intensity (304), with recently admitted and recently discharged inpatients showing increased

risk (64, 72, 91, 95, 305–308). This increase in rates of suicide after hospital discharge is seen across diagnostic categories and has been observed in individuals with major depressive disorder, bipolar disorder, schizophrenia, and borderline personality disorder. Rates decline with time since discharge but may remain high for as long as several years (91, 306, 309). Similar findings are seen with suicide attempts, which are also more frequent in the period after hospitalization (267, 305, 308). These observations suggest a need for close follow-up during the period immediately after discharge.

f) Illness course and severity

In some psychiatric disorders, suicide risk is greater at certain points in the illness or episode course. For example, in the course of major depressive disorder, suicidality tends to occur early, often before a diagnosis has been made or treatment has begun (304, 310–312). In patients with major depressive disorder (73, 313), as well as in those with bipolar disorder (73, 74, 305) or schizophrenia (83), suicide has been noted to be more likely during the first few episodes, early in the illness (314, 315). After a suicide attempt, the risk for suicide is also greatest initially, with most suicides occurring in the first year after the attempt (275). Although risks of suicide and suicide attempts later in the illness course are less than they are earlier on, these risks remain greater than those for the general population (74, 100, 316–318). These findings highlight the need for early identification of these disorders and for therapeutic approaches that will treat the illness while simultaneously promoting longer-term treatment adherence.

Risk may also vary with severity of symptoms. For example, higher levels of depression have been associated with increased risk of suicide in at least one study (319), whereas greater numbers of symptoms of borderline personality disorder have been associated with an increased risk for suicide attempts (195). In addition, higher levels of suicidal ideation and subjective hopelessness also increase risk for suicide (78) and suicide attempts (31). In contrast, higher levels of negative symptoms have been associated with decreased suicide risk in individuals with schizophrenia (320). It is also important to recognize that other factors such as age will modulate the effects of symptom severity on risk. With older adults, for example, milder symptoms may be associated with greater risk than moderate symptoms in younger adults (207, 321). Consequently, clinicians should consider the severity of a patient's illness and psychiatric symptoms in the context of other patient-specific factors when assessing suicide risk.

5. Physical illness

Identification of medical illness (axis III) is also an essential part of the assessment process. Such diagnoses will need to be considered in developing a plan of treatment, and they may influence suicide risk in several ways. First, specific medical disorders may themselves be associated with an increased risk for suicide. Alternatively, the physiological effects of illness or its treatment may lead to the development of psychiatric syndromes such as depression, which may also increase suicide risk. Physical illnesses are also a source of social and/or psychological stress, which in turn augments risk. Physical illnesses such as hepatitis C or sexually transmitted diseases may signal an increased likelihood of impulsive behaviors or comorbid substance use disorders that may in turn be associated with greater risk for suicidal behaviors. Finally, when physical illness is present, psychiatric signs and symptoms may be ascribed to comorbid medical conditions, delaying recognition and treatment of the psychiatric disorder.

Data from clinical cohort and record linkage studies indicate clearly that medical illness is associated with increased likelihood of suicide (Table 7). Not surprisingly, disorders of the nervous system are associated with an elevated risk for suicide. The association between seizure disorders and increased suicide risk is particularly strong and consistently observed (64, 322–328). Presumably because of its close association with impulsivity, mood disorders, and psychosis, temporal lobe epilepsy is associated with increased risk in most (322, 327, 328) but not all (325) studies. Suicide attempts are also more common among individuals with epilepsy (329–

TABLE 7. Risk of Suicide in Persons With Physical Disorders[a]

Disorder	Number of Studies	Standardized Mortality Ratio (SMR)[b]
AIDS	1	6.58
Epilepsy	12	5.11
Spinal cord injury	1	3.82
Brain injury	5	3.50
Huntington's chorea	4	2.90
Cancer	1	1.80

[a]Based on a meta-analysis by Harris and Barraclough (64) of 249 reports published between 1966 and 1993. Table adapted with permission.

[b]The SMR is the ratio of the observed mortality to the expected mortality and approximates the risk of mortality resulting from suicide in the presence of a particular disorder.

331). Other neurological disorders that are associated with increased risk for suicide include multiple sclerosis, Huntington's disease, and brain and spinal cord injury (25, 323, 332–334).

Other medical disorders that have also been associated with an increased risk for suicide include HIV/AIDS (25, 335, 336), malignancies (especially of the head and neck) (25, 333, 337, 338), peptic ulcer disease (25), systemic lupus erythematosus (25), chronic hemodialysis-treated renal failure (339), heart disease (337), and, in men, chronic obstructive pulmonary disease and prostate disease (337). In contrast, studies have not demonstrated increased suicide risk in patients with amyotrophic lateral sclerosis (ALS), blindness, cerebrovascular disease, hypertension, rheumatoid arthritis, or diabetes mellitus (25, 337).

Beyond the physical illness itself, functional impairments (321, 333, 338), pain (340–342), disfigurement, increased dependence on others, and decreases in sight (333) and hearing increase suicide risk. Furthermore, in many instances, the risk for suicide associated with a medical disorder is mediated by psychiatric symptoms or illness (321, 342, 343). Indeed, suicidality is rarely seen in individuals with serious physical illness in the absence of clinically significant mood disturbance. Finally, the risk for suicide or suicide attempts may also be affected by characteristics of the individual patient, including gender, coping style, availability of social supports, presence of psychosocial stressors, previous history of suicidal behaviors, and the image and meaning to the individual of the illness itself.

6. Family history

In individuals with a history of suicide among relatives, the risk of suicidal behaviors is increased, apparently through genetic as well as environmental effects. An increased relative risk for suicide or suicide attempts in close relatives of suicidal subjects has been demonstrated repeatedly (31, 82, 202, 214, 312, 344–364). Overall, it appears that the risk of suicidal behaviors among family members of suicidal individuals is about 4.5 times that observed in relatives of nonsuicidal subjects (365–368; R. Baldessarini, personal communication, 2002). Furthermore, this increase in the risk of suicidal behaviors among family members seems, at least in part, to be independent of genetic contributions from comorbid psychiatric diagnoses (355, 361, 367, 368).

Twin studies also provide strong support for the role of a specific genetic factor for suicidal behaviors (365, 368, 369), since there is substantially higher concordance of suicide and suicide attempts in identical twins, compared with fraternal twin pairs (370–375). Adoption studies substantiate the genetic aspect of suicide risk in that there is a greater risk of suicidal behavior among biologic than among adopted relatives of individuals with suicidal behavior or depression (376–378).

Despite the fact that family, twin, and adoption methods provide highly suggestive evidence of heritable factors in risk of suicide as well as some evidence for nonlethal suicidal behavior,

the mode of transmission of this genetic risk remains obscure. Thus far, molecular genetic approaches have not yielded consistent or unambiguous evidence of a specific genetic basis for suicide risk (16). In addition, genetic associations with suicide risk may be confounded by the heritability of other factors such as mood disorders or substance use disorder that are also associated with increased risk for suicidal behaviors.

7. Psychosocial factors

a) Employment

Unemployment has long been associated with increased rates of suicide (379, 380). In recent case-control and longitudinal studies, higher rates of unemployment have been consistently noted in suicide attempters (78, 149, 361, 381–383) and in persons who died by suicide (24, 190, 384, 385). Compared with individuals in control groups, unemployed persons have a two- to fourfold greater risk for suicide. Risk is particularly elevated in those under age 45 and in the years closest to job loss, with even greater and longer-lasting effects noted in women (24). Parallel increases in rates of suicide and suicide attempts are also seen in socioeconomically deprived geographical areas, which have larger numbers of unemployed people (386).

For many individuals, unemployment occurs concomitantly with other factors that affect the risk of suicidal behaviors. For example, with job loss, financial and marital difficulties may increase. Alternatively, factors such as psychiatric illness (380) or adverse childhood experiences (361) may affect rates of suicidal behaviors but also influence the likelihood of gaining and maintaining employment. Thus, while unemployment appears to be associated with some independent increase in risk, a substantial fraction of the increase in risk for suicidal behaviors among unemployed persons can be accounted for by co-occurring factors (361, 381, 384, 385).

Among individuals with alcohol use disorders, particularly those under age 45, unemployment is one of a number of stressors that is a common precipitant to suicide (149, 382, 387). Even in those without substance use disorders, unemployment may result in increased drinking, which in turn may precipitate self-destructive behavior (154). Conversely, in those with substance use disorders, full-time employment protects against suicidal behaviors, a finding that may in part relate to decreases in use of alcohol or other substances during the work week (260). Thus, unemployment may serve as a risk factor for suicide, whereas employment may have protective effects on suicide risks.

b) Religious beliefs

The likelihood of suicide may also vary with religious beliefs as well as with the extent of involvement in religious activities. In general, individuals are less likely to act on suicidal thoughts when they have a strong religious faith and believe that suicide is morally wrong or sinful. Similar findings of low suicide rates are found in cultures with strong religious beliefs that the body is sacred and not to be damaged intentionally. In the United States, Catholics have the lowest rate of suicide, followed by Jews, then Protestants (388). Among other religious groups, Islamic tradition has consistently regarded suicide as morally wrong, and some Islamic countries have legal sanctions for attempted suicide (389, 390). In some countries, suicide rates among Muslims appear to be greater than those among Hindus (391, 392), although suicide rates across countries do not appear to vary with the proportion of Muslims in the population (393).

Additional evidence suggests that it is the strength of the religious beliefs and not the specific religion per se that alters suicide rates (43, 394–398). In the African American community, for example, religion is viewed as a source of social solidarity and hope (22). Religious involvement may also help to buffer acculturative stress, which is associated with depression and suicidal ideation (43). The religious belief system itself and the practice of spiritual techniques may also decrease suicide risk by acting as a coping mechanism and providing a source of hope and purpose.

Although protective effects can be afforded by religious beliefs, this is not invariably the case. For example, suicide may be more likely to occur among cultures in which death by suicide is a traditionally accepted way of dealing with distress or in religions that deemphasize the boundaries between the living and the dead. Particularly for adolescents, belief in an afterlife may lead to suicide in an effort to rejoin a deceased loved one. Thus, it is important to gain an understanding of the specific religious beliefs and religious involvement of individuals and also to inquire how these religious beliefs relate to thoughts and conceptions of suicide.

c) Psychosocial support

The presence of a social support system is another factor that may reduce suicide risk (399, 400). Consequently, communicating with members of the patient's support network may be important in assessing and helping to strengthen social supports (see Section V.C, "Communication With Significant Others"). Although social supports typically include family members or friends, individuals may also receive support from other sources. For example, those in the military and those who belong to religious, community, or self-help organizations may receive support through these affiliations.

In addition to determining whether a support system is present, the clinician should assess the patient's perception of available social supports. Individuals who report having more friends and less subjective loneliness are less likely to have suicidal ideation or engage in suicidal behaviors (401). By the same token, if other social supports are not available, living alone may increase suicide risk (149, 385, 402), although this is not invariably true (343, 403, 404). Family discord, other relationship problems, and social isolation may also increase risk (403, 405, 406). Risk of suicidal behaviors may also increase when an individual rightly or wrongly fears that an interpersonal loss will occur (149). Thus, in estimating suicide risk, the clinician should assess the patient's support network as well as his or her perception of available social supports.

d) Reasons for living, including children in the home

An additional protective factor against suicidal behaviors is the ability to cite reasons for living (231, 407), which reflects the patient's degree of optimism about life. A sense of responsibility to family, particularly children, is a commonly cited reason for living that makes suicide a less viable option to escape from pain. The presence of children in the home as well as the number of children appear to decrease the risk for suicide in women (26, 47). Although less well-studied, a smaller effect on suicide potential may also be present in men who have children under age 18 within the home (408). Thus, knowledge of the patient's specific reasons for living, including information about whether there are children in the home, can help inform estimates of suicide risk.

e) Individual psychological strengths and vulnerabilities

Estimates of suicide risk should also incorporate an assessment of the patient's strengths and vulnerabilities as an individual. For example, healthy and well-developed coping skills may buffer stressful life events, decreasing the likelihood of suicidal actions (409). Conversely, lifelong patterns of problematic coping skills are common among those who die by suicide (410). Such factors may be particularly important in patients with substance use or personality disorders, for whom heightened suicide risk may be associated with life stressors or interpersonal loss.

In addition to the diagnosis of categorical axis II disorders, as discussed elsewhere, dimensional and trait approaches to personality can also inform estimates of suicide risk. Although the positive correlation value of individual personality traits with suicide is low, increased suicide risk may be associated with antisocial traits (411) as well as with hostility, helplessness/dependency, and social disengagement/self-consciousness (246).

Extensive clinical literature and clinical consensus support the role of psychodynamics in assessing a patient's risk for suicidal behavior (409, 410, 412–419). Suicide may have multiple motivations such as anger turned inward or a wish of death toward others that is redirected toward the

self. Other motivations include revenge, reunion, or rebirth. Another key psychodynamic concept is the interpretation of suicide as rooted in a triad of motivations: the wish to die, the wish to kill, and the wish to be killed (415). Other clinicians have conceptualized these motivations as escape (the wish to die), anger or revenge (the wish to kill), and guilt (the wish to be killed). The presence of one or several of these motivations can inform the psychiatrist about a patient's suicide risk.

Object relations theories offer important concepts for psychodynamic formulations of suicide. Suicidal behavior has been associated with poor object relations, the inability to maintain a stable, accurate, and emotionally balanced memory of the people in one's life (413). In some cases the wish to destroy the lives of the survivors is a powerful motivator (415, 420). For other individuals, a sadistic internal object is so tormenting that the only possible outcome is to submit to the tormentor through suicide (416, 417).

Other important psychodynamic concepts for the clinician to assess are shame, worthlessness, and impaired self-esteem. Early disturbance in parent-child relationships through failure of empathy or traumatic loss can result in an increased vulnerability to later injuries of self-esteem. These patients are vulnerable to narcissistic injuries, which can trigger psychic pain or uncontrollable negative affects. In these situations some patients may experience thoughts of death as peaceful, believing that their personal reality is emotionally intolerable and that it is possible to end pain by stopping consciousness.

Suicidal individuals are often ambivalent about making a suicidal action. As a result, suicide is less likely if an individual sees alternative strategies to address psychological pain (410). However, certain traits and cognitive styles limit this ability to recognize other options. For example, thought constriction and polarized, all-or-nothing thinking are characterized by rigid thinking and an inability to consider different options and may increase the likelihood of suicide (410, 421–423). Individuals who are high in neuroticism and low in "openness to experience" (affectively blunted and preferring the familiar, practical, and concrete) may also be at greater risk for suicide (424). Perfectionism with excessively high self-expectation is another factor that has been noted in clinical practice to be a possible contributor to suicide risk (425). As already discussed, pessimism and hopelessness may also act in a trait-dependent fashion and further influence individual risk.

In estimating suicide risk it is therefore important for the clinician to appreciate the contributions of patients' individual traits, early or traumatic history, ability to manage affects including psychological pain, past response to stress, current object relations, and ability to use external resources during crises. Identifying these issues may help the psychiatrist in assessing suicide risk. In addition, gaining an empathic understanding of the patient's unique motivations for suicide in the context of past experiences will aid in developing rapport as well as in formulating and implementing a psychotherapeutic plan to reduce suicide risk (410, 412, 421, 426).

8. Degree of suicidality

a) Presence, extent, and persistence of suicidal ideation

Suicidal ideation is an important determinant of risk because it precedes suicide. Moreover, suicidal ideation is common, with an estimated annual incidence of 5.6% (2) and estimated lifetime prevalence of 13.5% (427). Since the majority of individuals with suicidal ideation will not die by suicide, the clinician should consider factors that may increase risk among individuals with suicidal ideation. Although current suicidal ideation increases suicide risk (78, 79), death from suicide is even more strongly correlated with the worst previous suicidal ideation (273, 428). Thus, during the suicide assessment, it is important to determine the presence, magnitude, and persistence of current as well as past suicidal ideation.

In addition to reporting suicidal ideation per se, patients may report thoughts of death that may be nonspecific ("life is not worth living") or specific ("I wish I were dead"). These reports should also be assessed through further questioning since they may serve as a prelude to later development

of suicidal ideas or may reflect a sense of pessimism and hopelessness about the future (see Section II.E.3.b, "Hopelessness" [p. 870]). At the same time, individuals with suicidal ideation will often deny such ideas even when asked directly (218, 429–431). Given these associations of suicide with suicidal ideation, the presence of suicidal ideation indicates a need for aggressive intervention. At the same time, since as many as a quarter of suicide attempts occur impulsively (432), the absence of suicidal ideation does not eliminate risk for suicidal behaviors.

b) Presence of a suicide plan and availability of a method

Determining whether or not the patient has developed a suicide plan is a key part of assessing suicide risk. For many patients, the formation of a suicide plan precedes a suicidal act, typically within 1 year of the onset of suicidal ideation (427). A suicide plan entails more than simply a reference to a particular method of harm and includes at least several of the following elements: timing, availability of method, setting, and actions made in furtherance of the plan (procuring a method, "scoping out" the setting, rehearsing the plan in any way). The more detailed and specific the suicide plan, the greater will be the level of risk. Plans that use lethal methods or are formulated to avoid detection are particularly indicative of high risk (433). Access to suicide methods, particularly lethal methods, also increases suicide risk. Even in the absence of a specific suicide plan, impulsive actions may end in suicide if lethal methods are readily accessible. Thus, it is important to determine access to methods for any patient who is at risk for suicide or displays suicidal ideation.

In the United States, geographic variations in rates of firearm suicide parallel variations in the rates of gun ownership (434). Although individuals may opt for a different suicide method when a particular method is otherwise unavailable, studies show some decreases in overall suicide rates with restrictions in access to lethal suicide methods (e.g., domestic gas and paracetamol) (435–437). Men are most likely to use firearms in suicidal acts, but other specific populations at increased risk of using firearms include African Americans, elderly persons, and married women. In adolescents and possibly in other age groups, the presence of firearms may be an independent risk factor for suicide (438). Consequently, if the patient has access to a firearm, the psychiatrist is advised to discuss with and recommend to the patient or a significant other the importance of restricting access to, securing, or removing this and other weapons.

In addition to addressing access to firearms, clinicians should recognize the potential lethality of other suicide methods to which the patient may have access. As with restrictions for firearms, it is important for the psychiatrist to work with the patient, family members, and other social support persons in restricting the patient's access to potentially lethal suicide methods, particularly during periods of enhanced risk. Removal of such methods from a patient's presence does not remove the risk for suicide, but it removes the potential for the patient to impulsively gain access to the means with which to carry out a suicidal wish.

c) Lethality and intent of self-destructive behavior

Suicidal intent refers to the patient's subjective expectation and desire to die as a result of a self-inflicted injury. This expectation may or may not correspond to the lethality of an attempt, which represents the medical likelihood that death will result from use of a given method. For example, some patients may make a nonlethal attempt with the intention of being saved and getting help, whereas others may make a nonlethal attempt, thinking it will kill them. From the standpoint of suicide risk assessment, the strength of the patient's intent to die and his or her subjective belief about the lethality of a method are more relevant than the objective lethality of the chosen method (439, 440). The presence of a suicide note also indicates intensification of a suicidal idea and/or plan and generally signifies premeditation and greater suicidal intent. Regardless of whether the patient has attempted suicide or is displaying suicidal ideation, the clinician should assess the timing and content of any suicide note and discuss its meaning with the patient. The more specifically a note refers to actual suicide or steps to be taken after death, the

greater the associated increase in suicidal intent and risk. Factors separating suicide attempters who go on to make future fatal versus nonfatal attempts include an initial attempt with high intent (164, 441), having taken measures to avoid discovery (224), and having used more lethal methods that resulted in physical injuries (263), all of which indicate a greater degree of suicidal intent. Consequently, suicidal intent should be assessed in any patient with suicidal ideation. In addition, for any patient who has made a prior suicide attempt, the level of intent at the time of the suicide attempt should be determined.

F. ADDITIONAL CONSIDERATIONS WHEN EVALUATING PATIENTS IN SPECIFIC TREATMENT SETTINGS

1. Inpatient settings

Patients are often admitted to an inpatient unit in the midst of an acute suicidal crisis with either overt suicidal behavior or intense suicidal ideation. Even when a patient who is not in an acute suicidal crisis is admitted, the symptoms and disorders that typically lead to psychiatric hospitalization are associated with an increased suicide risk. There do not appear to be specific risk factors that are unique to the inpatient setting, with about half of inpatient suicides in a recent study involving individuals with prior suicide attempts and about half occurring in individuals with psychosis (218). Inpatient suicides also cannot be predicted by the reason for hospitalization, since fewer than half of the patients who die by suicide in the hospital were admitted with suicidal ideation and only a quarter were admitted after a suicide attempt. However, extreme agitation or anxiety (218) or a rapidly fluctuating course (442) is common before suicide. Thus, it is important to conduct a suicide risk assessment, as discussed earlier, when individuals are admitted for inpatient treatment, when changes in observation status or treatment setting occur, when there are significant changes in the patient's clinical condition, or when acute psychosocial stressors come to light in the course of the hospitalization. For patients with repeated hospitalizations for suicidality, each suicidal crisis must be treated as new with each admission and assessed accordingly.

2. Outpatient settings

An initial evaluation of a patient in an office-based setting should be comprehensive and include a suicide assessment. The intensity and depth of the suicide assessment will depend on the patient's clinical presentation. In following outpatients over time, the psychiatrist should be aware that suicidality may wax and wane in the course of treatment. Sudden changes in clinical status, which may include worsening or precipitous and unexpected improvements in reported symptoms, require that suicidality be reconsidered. Furthermore, risk may also be increased by the lack of a reliable therapeutic alliance, by the patient's unwillingness to engage in psychotherapy or adhere to medication treatment, or by inadequate family or social supports. Again, however, the frequency, intensity, and depth of the suicide assessment will depend on the patient's clinical state, past history, and other factors, including individual strengths, vulnerabilities, and stressors that will simultaneously influence risk. These factors will also be important in judging when family members or other significant support persons may need to be contacted.

3. Emergency settings

Regardless of the patient's presenting problem, the suicide assessment is an integral part of the psychiatric evaluation in an emergency setting. As in the inpatient setting, substantial numbers of individuals present to emergency settings with suicidal ideation or after having made a suicide attempt (443–447). Even when suicidality is not a part of the initial presentation, the majority of individuals seen in emergency psychiatric settings have diagnoses that are associated with an increased risk of suicide (268, 269, 271, 275, 448).

As the suicide assessment proceeds, the psychiatrist should be alert for previously unrecognized symptoms of trauma or toxicity resulting from ingestions. Ambivalence is a key element in individuals presenting with suicidality, and individuals may simultaneously seek help yet withhold information about recent ingestions (449) or self-induced trauma. Thus, in addition to initially assessing the patient's vital signs, the psychiatrist should investigate any changes in the patient's physical condition or level of consciousness that may develop during the course of the evaluation. For patients who are administered medications in the emergency area or who have concomitant alcohol or substance use, serial monitoring of vital signs is important to detect adverse events or signs of substance withdrawal.

Simultaneous presentation with intoxication and suicidality is common in emergency settings (444, 450–454) and requires some modification in the assessment process. Depending on the severity of the intoxication, medical intervention may be needed before psychiatric assessment begins. Also, it is often necessary to maintain the patient in a safe setting until the intoxication resolves and a thorough suicide assessment can be done. In this regard, some institutions find it helpful to quantify the level of intoxication (with serum alcohol levels or breath alcohol measurements), since some individuals may not show physical symptoms of intoxication despite substantially elevated blood alcohol concentrations (455). At some facilities, short-term observation beds are available in the emergency area or elsewhere for monitoring and serial assessments of intoxicated individuals who present with suicidality. At other facilities, such observation may need to be carried out in a more typical medical or psychiatric inpatient setting.

Although obtaining collateral information is useful with all suicidal individuals, in the emergency setting such information is particularly important to obtain from involved family members, from those who live with the patient, and from professionals who are currently treating the patient. Patients in emergency settings may not always share all of the potentially relevant aspects of their recent symptoms and their past psychiatric history, including treatment adherence. In addition, most psychiatrists who evaluate patients in emergency settings do not have the benefit of knowing and working with the patient on a longitudinal basis. Corroboration of history is particularly important when aspects of the clinical picture do not correspond to other aspects of the patient's history or mental state. Examples include patients who deny suicidal ideas and request discharge yet who made a highly lethal suicide attempt with clear suicidal intent or those who request admission on the basis of command hallucinations while seeming relaxed and jovial and without appearing to respond to internal stimuli.

The process by which the patient arrived at the emergency department can provide helpful information about his or her insight into having an illness or needing treatment. Typically, individuals who are self-referred have greater insight than those who are brought to the hospital by police or who reluctantly arrive with family members. For individuals who are brought to the emergency department by police (or as a result of a legally defined process such as an emergency petition), it is particularly important to address the reasons for the referral in estimating suicide risk.

4. Long-term care facilities

When evaluating patients in long-term care facilities, psychiatrists and staff should be aware of the varied forms that suicidality may take in such settings. In particular, it is important to recognize that indirect self-destructive acts are found among both men and women with chronic medical conditions (456–459) and are a common manifestation of suicide in institutional settings (460). Despite these occurrences, suicide rates in long-term care facilities are generally lower than expected (460, 461), perhaps as a result of greater supervision and residents' limited access to potentially lethal means and physical inability to carry out the act as well as underreporting or misattribution of self-destructive behaviors to accident or natural death (66).

Risk factors for suicide and other self-destructive behaviors are similar to those assessed in other settings of care. For example, 90% or more of randomly sampled residents of long-term care facilities have been shown to have a diagnosable psychiatric illness (462, 463), with the prev-

alence of depression in nursing homes estimated to range from 15% to 50% (66). Physical illness, functional impairment, and pain are associated with increased risk for suicide and are ubiquitous factors in long-term care facilities. Hopelessness (228) and personality styles that impede adaptation to a dependent role in the institutional setting also play a role (464).

When treating individuals in long-term care facilities, the psychiatrist should be mindful of the need for follow-up assessments, even when initial evaluation does not show evidence of depression or increased risk for suicide or other self-injurious behaviors. To facilitate early intervention, safety and suicide risk should be reassessed with significant changes in behavior, psychiatric symptoms, medical status, and/or level of functional disability. Psychiatrists can also play a critical role in educating long-term care providers about risk factors and warning signs for suicide in residents under their care.

5. Jail and correctional facilities

In jails, prisons, and other correctional facilities, most initial mental health assessments are not done by psychiatrists (465, 466); however, psychiatrists are often asked to perform urgent suicide assessments for individuals identified as being at risk. The actual rates of suicide in jails and in prisons are somewhat controversial, and reported rates depend on the method by which they are calculated (467). The U.S. Department of Justice Bureau of Justice Statistics reported that the rate of suicide per 100,000 prison inmates was 14 during 1999, compared with 55 per 100,000 jail inmates (468). However, reported rates are generally based on the average daily census of the facility. Since jails are local facilities used for the confinement of persons awaiting trial and those convicted of minor crimes, whereas prisons are usually under state control and are used to confine persons serving sentences for serious crimes, jails have a much more rapid turnover of detainees than prisons. This turnover results in a higher reported rate of suicides per 100,000 incarcerated persons in jails relative to prisons, since annual jail admissions are more than 20 times the average daily jail census, whereas the annual number of persons admitted to prisons nationwide is about 50% of the average daily prison census. Reported suicide rates in jails are also elevated relative to those in prisons because the majority of suicides in jail occur during the first 24 hours of incarceration (469, 470).

The importance of identification and assessment of individuals at increased risk for suicide is underscored by the fact that suicide is one of the leading causes of death in correctional settings. For example, from July 1, 1998, to June 30, 1999, natural causes other than AIDS barely led suicide as the leading cause of death in jails. Between 1995 and 1999, suicide was the third leading cause of death in prisons, after natural causes other than AIDS and deaths due to AIDS (468). In relative terms, suicides among youths in juvenile detention and correctional facilities are about four times more frequent, suicide rates for men in jails are about nine to 15 times greater, and the suicide rate in prisons is about one-and-a-half times greater than the suicide rate in the general population (471).

Factors that increase risk in other populations are very prevalent and contribute to increased risk in correctional populations (472, 473). Persons who die by suicide in jails have been consistently shown to be young, white, single, intoxicated individuals with a history of substance abuse (470, 474–476). Suicide in correctional facilities generally occurs by hanging, with bed clothing most commonly used (470, 474, 476–478). It is not clear whether first-time nonviolent offenders (474, 476) or violent offenders (473, 477) are at greater risk. Most (473, 474, 476, 479) but not all (480) investigators have reported that isolation may increase suicide in correctional facilities and should be avoided. While inmates may become suicidal anytime during their incarceration, there are times when the risks of suicidal behavior may be heightened. Experience has shown that suicidal behaviors increase immediately on entry into the facility, after new legal complications with the inmate's case (e.g., denial of parole), after inmates receive bad news about loved ones at home, or after sexual assault or other trauma (471).

There is little doubt that successful implementation of suicide prevention programs results in a significantly decreased suicide rate in correctional facilities (469, 481–483). Consequently, the standards of the National Commission on Correctional Health Care (NCCHC) require jails and prisons to have a written policy and defined procedures for identifying and responding to suicidal inmates, including procedures for training, identification, monitoring, referral, evaluation, housing, communication, intervention, notification, reporting, review, and critical incident stress debriefing (484, 485). Other useful resources include a widely used instrument for suicide screening (486) and the detailed discussions of specific approaches to suicidal detainees that are provided in a later NCCHC publication (487).

III. PSYCHIATRIC MANAGEMENT

Psychiatric management consists of a broad array of interventions and approaches that should be instituted by psychiatrists for all patients with suicidal behaviors. Psychiatric management serves as the framework by which the patient and psychiatrist will collaborate in the ongoing processes of assessing and monitoring the patient's clinical status, choosing among specific treatments, and coordinating the various treatment components. Psychiatric management includes establishing and maintaining a therapeutic alliance; attending to the patient's safety; and determining the patient's psychiatric status, level of functioning, and clinical needs to arrive at a plan and setting for treatment. For individuals with suicidal behaviors, such treatment planning will encompass interventions targeted to suicidality per se as well as therapeutic approaches designed to address psychosocial or interpersonal difficulties and any axis I and axis II disorders that may be present. Once a plan of treatment has been established with the patient, additional goals of psychiatric management include facilitating treatment adherence and providing education to patients and, when indicated, family members and significant others.

A. ESTABLISH AND MAINTAIN A THERAPEUTIC ALLIANCE

Beginning with the initial encounter with the patient, the psychiatrist should attempt to build trust, establish mutual respect, and develop a therapeutic relationship with the patient. Suicidal ideation and behaviors can be explored and addressed within the context of this cooperative doctor-patient relationship, with the ultimate goal of reducing suicide risk. This relationship also provides a context in which additional psychiatric symptoms or syndromes can be evaluated and treated. At the same time, the psychiatrist should recognize that an individual who is determined to die may not be motivated to develop a cooperative doctor-patient relationship and indeed may view the psychiatrist as an adversary. Appreciating the patient's relationship to and with significant others can help inform the clinician about the patient's potential to form a strong therapeutic relationship. In addition, the therapeutic alliance can be enhanced by paying careful attention to the concerns of patients and their family members as well as their wishes for treatment. Empathy (488, 489) and understanding of the suicidal individual (488–491) are also important in establishing a therapeutic psychiatrist-patient relationship, helping the patient feel emotionally supported, and increasing the patient's sense of possible choices other than suicide (492). In this manner, a positive and cooperative psychotherapeutic relationship can be an invaluable and even life-sustaining force for suicidal patients.

In caring for potentially suicidal patients, the psychiatrist will need to manage the often competing goals of encouraging the patient's independence yet simultaneously addressing safety. In addition, the psychiatrist should be aware of his or her own emotions and reactions to the suicidal patient that may influence the patient's care (488). Psychiatrists should acknowledge the unique place that they may hold in a patient's life, often seeming to be the only source

of stability or consistency. At the same time, the clinician must guard against falling into the role of constant savior (490, 491). Suicidal patients may wish to be taken care of unconditionally (493, 494) or alternatively, to assign others the responsibility for keeping them alive (490). Therapists who are drawn into the role of savior with suicidal patients often operate on the conscious or unconscious assumption that they can provide the love and concern that others have not, thus magically transforming the patient's wish to die into a desire to live (420, 490). Under such circumstances, or if the therapist uses defensive reaction formation to deny hostile feelings toward the patient, the therapist may go to great lengths to assure the patient that he or she has only positive feelings about the patient and will do whatever is necessary to save the patient's life. In the worst-case scenario, this need to demonstrate one's caring may contribute to boundary crossings or outright boundary violations (495). Also, by producing false or unrealistic hopes, the psychiatrist may ultimately disappoint the patient by not fulfilling those expectations. Thus, the psychiatrist must remember that taking responsibility for a patient's care is not the same as taking responsibility for a patient's life.

Suicidal patients can also activate a clinician's own latent emotions about death and suicide, leading to a number of defensive responses on the part of the clinician (426). On one hand, there is a potential to develop countertransference hate and anger at suicidal patients (496) that may be manifested by rejecting behavior on the part of the clinician (488). At the other extreme, the clinician may avoid patients who bring up his or her own anxieties surrounding suicide (426, 490). Clinicians may also overestimate the patient's capabilities, creating unrealistic and overwhelming expectations for the patient. Conversely, they may become enveloped by the patient's sense of hopelessness and despair and become discouraged about the progress of treatment and the patient's capacity to improve (488). Thus, management of the therapeutic alliance should include an awareness of transference and countertransference issues, regardless of the theoretical approach used for psychotherapy and regardless of whether these issues are directly addressed in treatment. In this regard, the use of consultation with a senior colleague with experience and some expertise in the management of suicidal patients may be helpful. It is also important to keep in mind that the course and conduct of treatment may be influenced by gender and cultural differences between patients and therapists as well as by cultural differences between patients and other aspects of the care delivery system.

B. ATTEND TO THE PATIENT'S SAFETY

Although it is impossible to prevent all self-injurious actions including actual suicide, it is critically important to attend to the patient's safety and work to minimize self-endangering behaviors throughout the evaluation and treatment process. The preceding sections have discussed an orderly process for assessing the patient, estimating suicide risk, and then instituting interventions to target that risk. In actual practice, however, some interventions may be needed to address the patient's safety while the initial evaluation proceeds. For example, in emergency or inpatient settings, specific interventions may include ordering observation of the patient on a one-to-one basis or by continuous closed-circuit television monitoring, removing potentially hazardous items from the patient's room, and securing the patient's belongings (since purses and backpacks may contain weapons, cigarette lighters or matches, and medications or other potentially toxic substances). If restraints are indicated, continuous observation is also recommended (497, 498). Some institutions screen patients for potentially dangerous items by searching patients or scanning them with metal detectors (499). In addition, some institutions have policies prohibiting any guns in emergency areas, since police or security officers' weapons may be taken by suicidal patients. In other circumstances, such as with agitated, uncooperative, intoxicated, or medically ill patients, significant time may elapse before it will be possible to complete a full psychiatric evaluation, including a suicide assessment. Under such conditions, the psychiatrist will need to use the information that is available to make a clinical judgment, with steps being taken to enhance the patient's safety in the interim.

C. DETERMINE A TREATMENT SETTING

Treatment settings include a continuum of possible levels of care, from involuntary hospitalizations to partial hospital and intensive outpatient programs to more typical ambulatory settings. In general, patients should be treated in the setting that is least restrictive yet most likely to prove safe and effective. In addition, the optimal treatment setting and the patient's ability to benefit from a different level of care should be reevaluated on an ongoing basis throughout the course of treatment.

The choice of an appropriate site of treatment will generally occur after the psychiatrist evaluates the patient's clinical condition, including specific psychiatric disorder(s) and symptoms (e.g., hopelessness, impulsiveness, anxiety), symptom severity, level of functioning, available support system, and activities that give the patient a reason to live. The psychiatrist should also consider whether or not the current suicidality is related to an interpersonal crisis such as a recent separation, loss of a loved one, or other trauma. The estimate of suicide risk will obviously be an important component of the choice of treatment setting, and the potential for dangerousness to others should also be taken into consideration. Under some clinical circumstances, a decision for hospitalization may need to be made on the basis of high potential dangerousness to self or others, even if additional history is unavailable or if the patient is unable to cooperate with the psychiatric evaluation (e.g., in the presence of extreme agitation, psychosis, or catatonia). At the same time, the benefits of intensive interventions such as hospitalization must be weighed against their possible negative effects (e.g., disruption of employment, financial and other psychosocial stress, persistent societal stigma). Other aspects to be incorporated into the determination of a treatment setting include the patient's ability to provide adequate self-care, understand the risks and benefits of various treatment approaches, understand what to do in a crisis (e.g., contact family members or other support persons, contact the psychiatrist, seek emergency care), give reliable feedback to the psychiatrist, and cooperate with treatment planning and implementation. Consequently, choice of a specific treatment setting will not depend entirely on the estimate of suicide risk but rather will rely on the balance between these various elements. An overview of factors to consider in determining a setting for treatment is provided in Table 8.

Hospitalization should always be viewed as a possible intervention and should be considered whenever the patient's safety is in question. Hospitalization, by itself, is not a treatment. Rather, it is a treatment setting that may facilitate the evaluation and treatment of a suicidal person. In addition, inpatient settings can implement approaches such as constant observation, seclusion, or physical or pharmacological restraint that may restrict an individual's ability to act on suicidal impulses. Although such interventions may delay suicide and permit initiation of treatment approaches, there is no empirical evidence that these methods reduce the incidence of suicide in the long term (77, 500, 501). In addition, hospitals must balance requirements for security against the patient's need to prepare to return to independent living in the community. Since patients cannot be continuously observed or restrained, they can and do die by suicide while hospitalized. In fact, it is estimated that approximately 1,500 inpatient suicides occur in the United States each year, with about a third of these occurring while patients are on one-to-one observation or every-15-minute checks (218).

Although no guidelines regarding hospitalization decisions can be absolute, inpatient care is usually indicated for individuals who are considered to pose a serious threat of harm to themselves or others. Other indications for hospitalization include factors based on illness (e.g., symptom severity, violent or uncontrollable behavior) and those based on the intensity of services needed (e.g., a need for continuous skilled observation; complicated medication trials, particularly for an elderly or a medically fragile patient; ECT; clinical tests or diagnostic evaluation that cannot be performed on an outpatient basis). Severely ill individuals may require hospitalization if they cannot be maintained safely in a less restrictive environment or if they lack adequate structure and social support outside of a hospital setting. More intensive treatment will also be called for whenever there is a new, acute presentation that is not part of a repetitive pattern. Additionally, those patients who have complicating psychiatric or general medical conditions or who have not re-

TABLE 8. Guidelines for Selecting a Treatment Setting for Patients at Risk for Suicide or Suicidal Behaviors

Admission generally indicated

After a suicide attempt or aborted suicide attempt if:

- Patient is psychotic
- Attempt was violent, near-lethal, or premeditated
- Precautions were taken to avoid rescue or discovery
- Persistent plan and/or intent is present
- Distress is increased or patient regrets surviving
- Patient is male, older than age 45 years, especially with new onset of psychiatric illness or suicidal thinking
- Patient has limited family and/or social support, including lack of stable living situation
- Current impulsive behavior, severe agitation, poor judgment, or refusal of help is evident
- Patient has change in mental status with a metabolic, toxic, infectious, or other etiology requiring further workup in a structured setting

In the presence of suicidal ideation with:

- Specific plan with high lethality
- High suicidal intent

Admission may be necessary

After a suicide attempt or aborted suicide attempt, except in circumstances for which admission is generally indicated

In the presence of suicidal ideation with:

- Psychosis
- Major psychiatric disorder
- Past attempts, particularly if medically serious
- Possibly contributing medical condition (e.g., acute neurological disorder, cancer, infection)
- Lack of response to or inability to cooperate with partial hospital or outpatient treatment
- Need for supervised setting for medication trial or ECT
- Need for skilled observation, clinical tests, or diagnostic assessments that require a structured setting
- Limited family and/or social support, including lack of stable living situation
- Lack of an ongoing clinician-patient relationship or lack of access to timely outpatient follow-up

In the absence of suicide attempts or reported suicidal ideation/plan/intent but evidence from the psychiatric evaluation and/or history from others suggests a high level of suicide risk and a recent acute increase in risk

Release from emergency department with follow-up recommendations may be possible

After a suicide attempt or in the presence of suicidal ideation/plan when:

- Suicidality is a reaction to precipitating events (e.g., exam failure, relationship difficulties), particularly if the patient's view of situation has changed since coming to emergency department
- Plan/method and intent have low lethality
- Patient has stable and supportive living situation
- Patient is able to cooperate with recommendations for follow-up, with treater contacted, if possible, if patient is currently in treatment

Outpatient treatment may be more beneficial than hospitalization

Patient has chronic suicidal ideation and/or self-injury without prior medically serious attempts, if a safe and supportive living situation is available and outpatient psychiatric care is ongoing

sponded adequately to outpatient treatment may need to be hospitalized. Inpatient care may also be necessary at lower levels of suicide risk in geographic areas where partial hospital or intensive outpatient programs are not readily accessible. If the clinician is not the patient's regular health care provider, does not have an ongoing relationship with the patient, or otherwise does not know the patient well and does not have access to the patient's history or medical records, hospitalization may be necessary until further data can be collected. More intensive treatment may also be necessary even for patients with lesser degrees of suicidality if the patient lacks a strong psychosocial support system, is unable to gain timely access to outpatient care, has limited insight into the need for treatment, or is unable to adhere to recommendations for ambulatory follow-up.

The hospital length of stay should similarly be determined by the ability of the patient to receive the needed care safely in a less intensive environment. In addition, before the patient is transitioned to a less restrictive setting, the patient's condition should show evidence of being improved and more stable both in the estimated level of suicide risk and in the symptoms of any associated psychiatric disorders.

Less intensive treatment may be more appropriate if suicidal ideation or attempts are part of a chronic, repetitive cycle and the patient is aware of the chronicity. For such patients, suicidal ideation may be a characteristic response to disappointment or a way to cope with psychological distress. If the patient has a history of suicidal ideation without suicidal intent and an ongoing doctor-patient relationship, the benefits of continued treatment outside the hospital may outweigh the possible detrimental effects of hospitalization even in the presence of serious psychiatric symptoms.

When considering hospitalization, the risk of suicide is not the only factor to take into account. Patients may feel humiliated or frightened in the hospital rather than experience a sense of emotional relief. Hospitalization can also be associated with realistic life stressors, including the social and financial burdens of having received inpatient treatment. For some patients, treatment in a restrictive setting such as an inpatient unit may foster dependency and a regressive, vicious cycle of intensifying suicidal thoughts requiring ever more restrictive care. Such individuals, most notably those with personality disorders, suffer chronic morbidity if they are never supportively challenged to bear painful feelings. In addition, some patients may gain positive reinforcement from hospitalization and repeatedly harm themselves with the goal of regaining admission. Psychiatric hospitalization may also arouse unrealistic expectations in patients, family members, therapists, and medical and nursing staff members. Often, a plea for hospitalization comes from a sense of exasperation on the part of an individual involved with the patient's situation. When hospital treatment does not meet these unrealistic expectations, the associated disillusionment may contribute to hopelessness and have a negative effect on future therapeutic relationships. The inpatient admission process itself may also cause the patient to mistrust mental health professionals, particularly when hospitalization occurs on an involuntary basis. Thus, the clinician's key responsibility is to weigh the risks and benefits of hospitalization before and during admission (especially around decisions related to therapeutic passes and privilege levels) and ultimately when contemplating discharge (502). Moreover, a person's right to privacy and self-determination (which includes the right to be treated in the least restrictive environment) must be balanced against the issue of potential dangerousness to self or others.

If hospitalization is indicated, the psychiatrist must next decide whether it should occur on a voluntary or involuntary basis. This decision will also depend on multiple factors, including the estimated level of risk to the patient and others, the patient's level of insight and willingness to seek care, and the legal criteria for involuntary hospitalization in that jurisdiction. In general, patients at imminent risk for suicide will satisfy the criteria for involuntary hospitalization; however, the specific commitment criteria vary from state to state (503), and in some states, willingness to enter a hospital voluntarily may preclude involuntary admission. To that end, psychiatrists should be familiar with their specific state statutes regarding involuntary hospitalization.

Patients who are not assessed to be at imminent risk for suicide and who do not require inpatient treatment for other reasons may be suitable for treatment on an outpatient basis. Outpatient

treatment may vary in its intensity from infrequent office visits for stable patients to more frequent office visits (up to several times per week) to intensive outpatient or partial hospital treatment. Either of the latter settings may function as a "step-down" from inpatient treatment or as a "step-up" from outpatient therapy, if once- or twice-a-week therapy is insufficient to maintain the patient's stabilization. For patients at significant risk for suicide in these treatment programs, a member of the treatment team must be available to respond to emergencies by telephone, beeper, or other means of contact. In military settings, "unit watch" protocols may be activated to look after the patient between treatment sessions. For patients who continue to be followed by an outside therapist or psychiatrist while in a partial hospital or intensive outpatient treatment program, regular communication among treating professionals is important. Communication with significant others is also helpful, and appropriate supervision and supports should be available and may include a plan for continued after-hours monitoring. If such supervision is not possible, a higher level of care (i.e., inpatient admission) may be needed to maintain the patient's safety even at lower levels of suicide risk. Worsening of a patient's condition, with a concomitant increase in the risk of suicide, requires the careful assessment of the patient's risk for suicide and possible hospitalization. Discharge planning should include appropriate continuing treatment to maintain stability gains and to continue monitoring of suicide risk.

Under some circumstances, individuals who are not currently engaged in outpatient treatment may be referred for care after a suicide attempt or emergency department visit in which suicidality was at issue. Since adherence is often a problem when individuals are referred for outpatient follow-up from emergency departments (448, 504), it may be helpful to discuss the referral with the patient during the course of the interview and if possible arrange a specific appointment time (505–507). When determining a treatment setting in emergency situations, it is also important to consider the potential effects of countertransference and lack of knowledge about suicidality on clinical decision making, since individuals who present with suicidal ideas or attempts may engender a broad range of countertherapeutic reactions in medical professionals, including antipathy, anger, helplessness, and indifference (445, 450, 508–510).

D. DEVELOP A PLAN OF TREATMENT

Individuals with suicidal thoughts, plans, or behaviors may benefit from a variety of treatments. If the patient is at risk for suicide, a plan that integrates a range of biological and psychosocial therapies may increase the likelihood of a successful outcome. Choosing among possible treatments requires knowledge of the potential beneficial and adverse effects of each option along with information about the patient's preferences. In addition, treatment decisions should be continually reassessed as new information becomes available, the patient's clinical status changes, or both. For patients in ongoing treatment, this may mean that existing treatment plans will require modification as suicidal ideas or behaviors emerge or wane. Thus, treatment planning is an iterative process in which the psychiatrist works with the patient to implement and modify treatments over time, depending on the patient's responses and preferences. Depending on the clinical circumstances, it may be important for the treatment planning process to include family members or other significant supports (e.g., military unit personnel, community residence or adult home providers, case management staff). More detail on the specific therapeutic approaches discussed subsequently can be found in APA practice guidelines that discuss treatment of specific psychiatric disorders, including major depressive disorder (511), bipolar disorder (512), schizophrenia (513), panic disorder (514), and borderline personality disorder (515).

Psychiatrists should be cautioned against developing a treatment plan in which the stated goal is to "eliminate" suicide risk; this is impossible to do for the reasons already discussed. Instead, the goals of treatment should include a comprehensive approach to treatment with the major focus directed at reducing risk. Since individuals with suicidal behaviors often have axis I

and axis II disorders, reducing risk frequently involves treating an associated psychiatric illness. Given the high rates of comorbid alcohol and substance use among individuals with suicidal behaviors, it is particularly important to address substance use disorders in the treatment plan (516). Medical disorders and treatments for those disorders will also need to be considered in developing a plan of treatment for the patient with suicidal behaviors.

In the early stages of treatment, more intense follow-up may be needed to provide support for the patient as well as to monitor and rapidly institute treatment for relevant symptoms such as anxiety, insomnia, or hopelessness. In addition, it is during the early stages of illness that denial of symptoms and lack of insight into the need for treatment are likely to be most prominent, and, therefore, specific education and supportive psychotherapy are required to target these issues. Appreciating the patient's past responses to stress, vulnerability to life-threatening affects, available external resources, death fantasies, and capacity for reality testing may help the clinician to weigh the strengths and vulnerabilities of the individual patient (412) and may aid in the planning of treatment. For patients treated in ambulatory settings, it is also important for the psychiatrist to review with the patient guidelines for managing exacerbations of suicidal tendencies or other symptoms that may occur between scheduled sessions and could contribute to increased suicide risk.

E. COORDINATE CARE AND COLLABORATE WITH OTHER CLINICIANS

Providing optimal treatment for patients with suicidal behaviors frequently involves a multidisciplinary treatment team that includes several mental health professionals. While ongoing coordination of the overall treatment plan is generally easier to implement in inpatient or partial hospital settings as opposed to less integrated ambulatory settings, useful strategies for coordination in any treatment setting include clear role definitions, regular communication among team members, and advance planning for management of crises. It is also helpful to clarify with the patient that a number of individuals will be involved in his or her care and to outline the specific roles of each. In this regard, it is important for patients to understand that treatment team members assist the psychiatrist in many respects and may supply clinical information that will influence decisions about the level of precautions, readiness for discharge, medications, and other aspects of treatment planning.

Many patients have ongoing medical illnesses for which they receive care from one or more physicians. Particularly for individuals whose medical disorders or treatments interface with their psychiatric symptoms or treatments, it is helpful to communicate with the patient's primary care physician as well as with any specialists who are actively involved in the patient's care.

In inpatient settings, the treatment team generally consists of a psychiatrist, nurses, social workers, psychologists, and other mental health workers, with the psychiatrist acting as the team leader. In this capacity, with input from the other members of the treatment team, the psychiatrist will make the critical decisions regarding the patient's care. Such decisions include but are not limited to the patient's diagnosis, specific medications, level of precautions, passes, discharge, and follow-up treatment plan. Given the key roles and observations of other treatment team members in such decisions, the psychiatrist should encourage open communication among the staff members regarding historical and clinical features of the patient.

In an outpatient setting, there may also be other professionals involved in the care of the patient. In some instances, the patient may be referred to individuals with expertise in symptom-specific treatments (e.g., cognitive behavior therapy for hopelessness or dialectical behavior therapy for recurrent suicidal behavior). In other instances, the psychiatrist may be providing primarily psychopharmacologic management, with another psychiatrist or other mental health professional conducting the psychotherapy. During visits with the patient, it is important for the psychiatrist to review the patient's response to all aspects of the treatment. In addition, it is useful for the psychiatrist to communicate with the therapist and to establish guidelines or expectations as to when and under what conditions the therapist and the psychi-

atrist should be contacted in the event of a significant clinical change in the patient. Moreover, if the psychiatrist has direct supervisory responsibilities for the therapist, the level of communication should be increased and may include a chart review.

F. PROMOTE ADHERENCE TO THE TREATMENT PLAN

The successful treatment of many psychiatric disorders requires close adherence to treatment plans, in some cases for long or indefinite durations. With individuals whose clinical symptoms include suicidal thoughts, plans, or behaviors, it is particularly important that management be optimized through regular adherence with the treatment plan. Facilitating adherence begins with the initial establishing of the physician-patient relationship and the collaborative development of a plan of care that is attentive to the needs and preferences of the individual patient. Within the therapeutic relationship the psychiatrist should create an atmosphere in which the patient can feel free to discuss what he or she experiences as positive or negative in the treatment process. Side effects or requirements of treatment are common causes of nonadherence. Other common contributors include financial constraints, scheduling or transportation difficulties, perceived differences of opinion with the clinician, and misunderstandings about the recommended plan of treatment or dosing of medications. Especially while symptomatic, patients may be poorly motivated, less able to care for themselves, or unduly pessimistic about their chances of recovery with treatment, or they may suffer from memory deficits or psychosis. In some instances, psychiatric disorders are associated with reductions in insight about having an illness or needing treatment, making adherence less likely. Particularly during maintenance phases of treatment, when symptoms are less salient, patients may tend to undervalue the benefits of treatment and instead focus on its burdens. The psychiatrist should recognize these possibilities, encourage the patient to articulate any concerns regarding adherence, and emphasize the importance of adherence for successful treatment and for minimizing the risk of future suicidal behaviors (306). Specific components of a message to the patient that have been shown to improve adherence include 1) when and how often to take the medicine, 2) the fact that some medications may take several weeks before beneficial effects may be noticed, 3) the need to take medication even after feeling better, 4) the need to consult with the doctor before discontinuing medication, and 5) what to do if problems or questions arise (517).

To facilitate adherence, it is helpful to reassess the treatment plan on a regular basis in collaboration with the patient and attempt to modify it in accord with the patient's preferences and needs. Some patients, particularly elderly patients, have been shown to have improved adherence when both the complexity of medication regimens and the costs of treatments are minimized. When a patient does not appear for appointments or is nonadherent in other ways, outreach, including telephone calls, may be helpful in reengaging the patient in treatment. This outreach can be carried out by the psychiatrist or other designated team members in consultation with the psychiatrist. For patients in an involuntary outpatient treatment program, the judicial system may also be involved in outreach efforts. Severe or persistent problems of nonadherence may represent psychological conflicts or psychopathology, for which psychotherapy should be considered. Educating patients about medications, aspects of suicidality, and specific psychiatric disorders and their management can be useful. When family members or other supportive individuals are involved (e.g., military command personnel, supported housing staff), they can also benefit from education and can be encouraged to play a helpful role in improving adherence.

G. PROVIDE EDUCATION TO THE PATIENT AND FAMILY

Most patients can benefit from education about the symptoms and disorders being treated as well as about the therapeutic approaches employed as part of the treatment plan. When appropriate, and with the patient's permission, education should also be provided to involved family

members. Understanding that psychiatric disorders are real illnesses and that effective treatments are both necessary and available may be crucial for patients who attribute their illness to a moral defect or for family members who are convinced that there is nothing wrong with the patient. Patients and family members can also benefit from an understanding of the role of psychosocial stressors and other disruptions in precipitating or exacerbating suicidality or symptoms of psychiatric disorders. Education regarding available treatment options will help patients make informed decisions, anticipate side effects, and adhere to treatments. Patients also need to be advised that improvement is not linear and that recovery may be uneven. Certain patients or family members may become overwhelmed or devastated by a recurrence of symptoms or a temporary worsening of symptoms after the initiation of treatment. Since suicidal patients tend to be overly critical of themselves, a recurrence or worsening of symptoms may be seen as evidence of personal failure; they need to be reassured that this can be part of the recovery process.

It is also useful to have an open discussion with the patient about the phenomenon of suicide. When there has been a family history of suicide, some patients will feel that it is their fate to die from suicide as well. The age at which a family member died or the specific anniversary of the family member's death may take on special significance for some patients. Education for the patient and the family should emphasize that a family history of suicide may increase risk of suicide, but it does not make suicide inevitable. It can be helpful to educate the patient and involved family members about how to identify symptoms, such as insomnia, hopelessness, anxiety, or depression, that may herald a worsening of the patient's clinical condition. In addition, patients and family members should be encouraged to think about other symptoms, specific to the individual patient, that have been associated with suicidality in the past. Furthermore, patients and family members should be aware that thoughts of suicide may return and that they should inform the psychiatrist or a significant other as soon as possible if that occurs. There should also be an open discussion about what to do in the event of an emergency and how to obtain emergency services. Under some circumstances, this discussion may include an explanation of methods for involving the police to facilitate an involuntary evaluation.

Some family members, particularly those of patients with borderline personality disorder, mistakenly view suicide attempts or communications of suicidal intent as "manipulative" or "attention-seeking" behaviors. Thus, it is important to provide family members with education about the lifetime risks of suicide in such patients and to help family members learn ways to respond in a helpful and positive manner when the patient is experiencing a suicidal crisis.

H. REASSESS SAFETY AND SUICIDE RISK

The waxing and waning nature of suicidality is one of the difficult challenges in the care of the suicidal patient and often requires that suicide assessments be repeated over time (Table 2). Although a full suicide assessment is not required at each encounter with the patient, the psychiatrist should use reasonable judgment in determining the extent of the repeat assessment needed to estimate the patient's current suicide risk. In inpatient settings, repeat suicide assessments should occur at critical stages of treatment (e.g., with a change in level of privilege, abrupt change in mental state, and before discharge). When a reassessment is done, the psychiatrist often finds that a patient who initially reported suicidal ideation with lethal intent no longer reports suicidal ideation at a subsequent visit. As stated earlier, it is not possible to predict which individuals with recent suicidal ideation will experience it again nor which patients will deny suicidal ideation even when it is present. Nonetheless, if a patient is assessed as being at high risk for suicide, a plan to address this risk must be implemented and documented. This plan may include changes in the setting of care or level of observation, changes in medication therapy or psychotherapy, or both kinds of changes.

Patients with a recent onset of severe suicidal ideation should be treated with particular caution. For those experiencing suicidal ideation in the context of an underlying depressive disorder, it can

be useful to monitor other depressive symptoms. The psychiatrist also needs to be mindful of other symptoms that may be associated with increased suicide risk, such as hopelessness, anxiety, insomnia, or command hallucinations. Behaviors that may be associated with an acute increase in risk include giving away possessions, readying legal or financial affairs (e.g., finalizing a will, assigning a power of attorney), or communicating suicidal intentions or "goodbye" messages.

Patients who are responding to ongoing treatment or who are in remission with continuation or maintenance treatment should be assessed for suicide risk when there is evidence of an abrupt clinical change, a relapse or recurrence, or some major adverse life event. In this context, the new emergence of suicidality should be responded to by an alteration of the treatment plan. The nature of this alteration depends on the clinical situation and can include a change in treatment setting or level of observation, increased visits, a change of medication or psychotherapeutic approach, inclusion of a significant other person, and consultation. With changes in clinical status or as new information becomes available, the psychiatrist must also be prepared to reevaluate the patient's psychiatric diagnosis and also evaluate the nature and strength of the therapeutic alliance.

1. Patients in a suicidal crisis

There will be times when a patient in ongoing treatment is in an acute suicidal crisis and the psychiatrist has to respond immediately. There may be communications directly from the patient, the family, or significant others, including employers or co-workers. In urgent situations, it may be necessary to have telephone calls traced or involve the police. The challenge for the psychiatrist is not only to evaluate the extent of the emergency but also to assess the content of the communication and its source. To better assess the situation, it is critical to speak with the patient directly, if at all possible. In addition, the psychiatrist should remain mindful of issues relating to confidentiality and breach confidentiality only to the extent needed to address the patient's safety (see also Section V.C, "Communication With Significant Others").

Under some circumstances, the psychiatrist may need to refer a suicidal patient to an emergency department for evaluation or hospitalization. When doing so, it is important for the psychiatrist to communicate with the psychiatric evaluator in the emergency department. Although such communication may not always be possible because of the exigencies of the emergency situation, such contact does provide hospital personnel with the context for the emergency. Particularly when a patient is brought to the hospital by police, it is not unusual for the patient to minimize the symptoms and reasons for the referral after arriving in the emergency setting. Adequate information about the reasons for the emergency department referral and about the patient's previous and recent history can be crucial in helping the emergency department evaluator determine a safe and appropriate setting for treatment. When hospitalization is recommended by the referring psychiatrist, the reasons for that recommendation should similarly be communicated to the emergency department evaluator who will be making the final determination about the need for hospital admission.

2. Patients with chronic suicidality

For some individuals, self-injurious behaviors and/or suicidality are chronic and repetitive, resulting in frequent contacts with the health care system for assessment of suicide potential. It is important to recognize that self-injurious behaviors may or may not be associated with suicidal intent (518). Although self-injurious behaviors are sometimes characterized as "gestures" aimed at achieving secondary gains (e.g., receiving attention, avoiding responsibility through hospitalization), patients' motivations for such behaviors are quite different. For example, without having any desire for death, individuals may intentionally injure themselves to express anger, relieve anxiety or tension, generate a feeling of "normality or self-control," terminate a state of depersonalization, or distract or punish themselves (519, 520). Conceptualizing such behav-

iors as "gestures" is also problematic because suicide attempts may be downplayed when associated with minimal self-harm. Self-destructive acting out can also result in accidentally lethal self-destructive behaviors even in the absence of suicidal intent. Furthermore, a past or current history of nonlethal self-injurious behaviors does not preclude development of suicidal ideas, plans, or attempts with serious intent and lethality (521). In fact, among suicide attempters with suicidal intent, those who also had histories of self-injurious behaviors without suicidal intent were more likely to underestimate the objective lethality of their attempt and to have symptoms associated with greater suicide risk (251). Thus, in assessing chronic self-injurious behaviors, it is important to determine whether suicidal intent is present with self-injury and, if so, to what extent and with what frequency. In addition, an absence of suicidal intent or a minimal degree of self-injury should not lead the psychiatrist to overlook other evidence of increased suicide risk.

For patients who are prone to chronic self-injurious behavior, each act needs to be assessed in the context of the current situation; there is not a single response to self-injurious behaviors that can be recommended. For example, there are times when outpatient management is most appropriate; under other circumstances, hospitalization may be indicated. In general, for such individuals, hospitalization should be used for short-term stabilization, since prolonged hospital stays may potentiate dependency, regression, and acting-out behaviors. When chronic self-injurious behaviors are present, behavioral techniques such as dialectical behavior therapy can be helpful (522, 523). In addition, at times when care of the patient is being transitioned to another clinician, the risk of suicidal behaviors may increase.

Diagnostically, severe personality disorders, particularly borderline (521) and antisocial personality disorders, predominate among patients who exhibit chronic self-injurious behaviors without associated suicidal intent. Such individuals may also have higher rates of comorbid panic disorder and posttraumatic stress disorder (524). Patients with schizoaffective disorder, bipolar disorder, and schizophrenia may also be represented, but more often such patients have ongoing thoughts of suicide or repeated suicide attempts in the presence of suicidal intent. There is evidence that the presence of comorbid personality disorders or substance use disorders not only increases suicide risk in these individuals but also decreases treatment response. For example, patients with a combination of affective disorder and personality disorder are prone to frequent suicidal crises, difficulties with mood instability and impulse control, and problems with treatment adherence. Consequently, for patients whose nonadherence contributes to a chronic risk for suicide, psychiatrists should be familiar with statutes on involuntary outpatient treatment, if it is applicable in their jurisdiction (525).

When treating chronically suicidal individuals, it is important for the psychiatrist to monitor his or her own feelings, including countertransference reactions. Careful attention to the treatment relationship and the psychosocial context of the patient is also critical. Consistency and limit-setting are often needed, but the latter needs to be established on the basis of clinical judgment and should not be framed in punitive terms. Helping patients develop skills for coping with self-injurious impulses is often a valuable part of treatment.

In outlining a detailed treatment plan, it is helpful to incorporate input from the patient and significant others, when clinically appropriate. During periods of crisis, disagreements may occur about the need for hospitalization. In some circumstances, the psychiatrist may view hospitalization as essential, whereas the patient or family members may not. Alternatively, the patient, family members, or other involved persons may demand hospitalization when outpatient management may seem more appropriate. When such disagreements occur, power struggles are best avoided. Instead, gaining a deeper understanding of the conflicting viewpoints will often lead to a successful resolution. In addition, educational efforts with the patient and others should discuss the fact that risk in chronically suicidal individuals will be increased on an ongoing basis. Thus, the risk of suicide outside of the hospital must be balanced against the potentially detrimental effects of hospitalization (see Section III.C, "Determine a Treatment Setting").

I. MONITOR PSYCHIATRIC STATUS AND RESPONSE TO TREATMENT

In addition to reassessing the patient's safety and degree of suicidality, it is equally important for the psychiatrist to monitor the patient's psychiatric status and response to treatment. This is particularly the case during the early phases of treatment, since some medications, particularly antidepressants, may take several weeks to reach therapeutic benefit. Also, with the exception of suicides in persons with alcoholism, suicides tend to occur early in the course of most psychiatric disorders, when individuals are least likely to have insight into having an illness and are least likely to adhere to treatment. Moreover, clinical observations suggest that there may be an early increase in suicide risk as depressive symptoms begin to lift but before they are fully resolved. Thus, ongoing monitoring of the patient's clinical condition is needed to determine the patient's symptoms and response to treatment (e.g., determining the optimal dose of a drug and evaluating its efficacy). Often the course of treatment is uneven, with periodic setbacks, for example, at times of stress. Such setbacks do not necessarily indicate that the treatment is ineffective. Nonetheless, ultimate improvement should be a reasonably expected outcome. Furthermore, as treatment progresses, different features and symptoms of the patient's illness may emerge or subside. Significant changes in a patient's psychiatric status or the emergence of new symptoms may indicate a need for a diagnostic reevaluation, a change in treatment plan, or both. Such modifications may include a change in treatment setting, medication, or frequency of visits; involvement of significant others; referral for additional treatments (e.g., dialectical behavior therapy, ECT) that are targeted at specific symptoms or syndromes; and consultation.

J. OBTAIN CONSULTATION, IF INDICATED

In treating suicidal patients, particularly those with severe or chronic suicidality, consultation may be helpful from a number of standpoints. The use of consultation or supervision from a colleague may be of help in monitoring and addressing countertransference issues. Since clinical judgments regarding assessment and treatment issues with suicidal patients may be quite difficult, input from other colleagues may be important in affirming the appropriateness of the treatment plan or suggesting other possible therapeutic approaches. For complex clinical presentations in which alcohol or other substance use disorders might be present, referral to a psychiatrist specializing in the treatment of addictive disorders may be helpful for consultation, management, or involvement in a program of recovery. However, in the context of a suicidal crisis, psychiatrists need to be careful in referring a long-term patient for consultation. Some patients may perceive such a referral as the first step to termination of therapy and may need to be reassured that the referral is only for consultation.

IV. SPECIFIC TREATMENT MODALITIES

A. SOMATIC THERAPIES

For the purposes of this practice guideline, psychiatrists should be familiar with specific psychotropic medicines that have been found to be useful in the care of the suicidal patient. In general, somatic therapies such as antidepressants, antipsychotics, or mood-stabilizing agents will be targeted to specific axis I and/or axis II psychiatric disorders. However, early use of supplemental medicines, including sedative-anxiolytics or low doses of second-generation antipsychotics, may also be helpful to rapidly address agitation, anxiety, and insomnia, which are additional risk factors for suicide.

1. Antidepressants

A mainstay of the treatment of suicidal patients suffering from acute, recurrent, and chronic depressive illness is the administration of antidepressant medication in an adequate dose (526). Antidepressants also have demonstrated efficacy in the treatment of anxiety disorders (526). They have also been used successfully in treating suicidal patients with comorbid depression and substance use disorders (527). Remarkably, however, there is relatively limited evidence that antidepressant treatment reduces risk (69, 526, 528–533). On the basis of a large number of short-term randomized, placebo-controlled trials for acute major depression (534–546) that were subjected to meta-analysis (533), antidepressant treatment has not been shown to reduce rates of suicide or suicide attempts. Studies using data on antidepressants from Food and Drug Administration clinical trial databases also do not show differences in rates of suicide or suicide attempts with antidepressant treatment (546–548). However, reductions in risk might not be observed as readily over short time periods or in studies in which suicidality was used as an exclusion criterion. Furthermore, long-term studies with relevant data are rare and too small to support any conclusions (526). However, since the late 1980s, suicide rates in several countries, regions, or subpopulations have fallen appreciably (69, 531, 532, 549, 550), coinciding with the increasing clinical use of nontricyclic and non–monoamine oxidase inhibitor (non-MAOI) antidepressants in adequate doses and perhaps providing indirect evidence for a role of antidepressant treatment in the treatment of suicidal behaviors.

After publication of several case reports suggesting that SSRI antidepressants might be associated with increased risks of aggressive or impulsive acts, including suicide (551–553), a number of investigators retrospectively analyzed clinical trial data to determine whether suicidality and/or suicide rates are increased with SSRI treatment (537, 548, 554, 555). These studies did not show evidence that suicide or suicidality is increased by treatment with specific types of antidepressants. At the same time, these medications are prescribed in order to treat disorders that may have anxiety, agitation, and suicidality as part of the illness course, making it difficult to distinguish the etiology of symptoms that emerge in the course of treatment. Thus, as treatment begins, it is important to determine baseline levels of symptoms and then to observe patients for symptoms such as anxiety, agitation, or sleep disturbance as well as for the development of mixed states or psychosis, all of which may increase their subjective sense of distress and increase suicide risk. In addition, antidepressant therapy typically involves a substantial delay before clinically obvious improvements occur. During initial, partial recovery, it is possible that suicidal impulses as well as the energy to act on them may increase. Patients should be forewarned of this likely delay in treatment effects and should be given encouragement and monitored especially closely in the initial days and weeks of treatment. If full response to treatment is not observed, adjustments in medication dosage or a change to a different antidepressant medication may be necessary. Nontricyclic, non-MAOI antidepressants are relatively safe and present virtually negligible risks of lethality on overdose (526). Nevertheless, it is wise to request that conservative quantities of medication be dispensed for suicidal patients, especially for patients who are not well known. Although the tricyclic antidepressants and MAOIs are much more toxic in overdose and more limited in their use, they may still be valuable in treating individuals with suicidal behaviors and depressive disorders who have not responded to treatment with SSRIs or other newer antidepressants (526, 556, 557). Overall, from a clinical perspective, the strong association between clinical depression and suicide and the availability of reasonably effective and quite safe antidepressants support their use, in adequate doses and for an adequate duration, as part of a comprehensive program of care for potentially suicidal patients, including long-term use in patients with recurrent forms of depressive or severe anxiety disorders.

2. Lithium

There is strong and consistent evidence in patients with recurring bipolar disorder and major depressive disorder that long-term maintenance treatment with lithium salts is associated with major reductions in risk of both suicide and suicide attempts (69, 558–565). A recent meta-analysis (563) of available studies of suicide rates with versus without long-term lithium maintenance treatment (76, 534, 559, 565–595) found a highly statistically significant decrease in suicidal acts (i.e., suicide or suicide attempts) of almost 14-fold. For suicide, lithium maintenance treatment was associated with an 80%–90% decrease in risk, whereas the reduction in suicide attempt rates was more than 90%. Although suicide rates during lithium treatment are still greater than those in the general population, maintenance therapy with lithium for bipolar disorder patients is associated with substantial and significant reductions in suicide risk, compared to non-lithium-treated bipolar disorder patients. As with antidepressants, the potential lethality of lithium in overdose (596) should be taken into consideration when deciding on the quantity of lithium to give with each prescription. However, given the long-term benefits of lithium in reducing risks of suicidal behaviors, the potential for overdose effects should not preclude treatment of suicidal patients with lithium when it is clinically indicated.

3. "Mood-stabilizing" anticonvulsant agents

Despite the increased use and antimanic efficacy of specific anticonvulsant and antipsychotic agents (e.g., divalproex, olanzapine), their long-term effectiveness in protecting against recurrent mood episodes is less well established. Moreover, there is no established evidence of a reduced risk of suicidal behavior with any other "mood-stabilizing" anticonvulsants. Although treatment with these agents may be associated with some decrease in suicidal behaviors, lithium treatment is still associated with a greater diminution in rates of suicidal acts than treatment with carbamazepine or divalproex (592, 597, 598). Consequently, when deciding between lithium and other first-line agents for treatment of patients with bipolar disorder, the efficacy of lithium in decreasing suicidal behavior should be taken into consideration when weighing the benefits and risks of treatment with each medication.

4. Antipsychotic agents

Analogous to the use of antidepressants for patients with depression, the antipsychotic medications have been the mainstay of somatic treatment for suicidal patients with psychotic disorders. First-generation antipsychotic agents are highly effective in treating delusions and hallucinations as well as agitation, aggression, and confusion and may also have some beneficial actions in major affective disorders. Their potential effects in limiting suicidal risk in psychotic patients are unknown, although annual rates of suicide associated with schizophrenia have not fallen appreciably since their introduction (599–602).

Particularly in highly agitated patients, the beneficial effects of first-generation and modern antipsychotics may serve to reduce suicide risk (603). However, use of older neuroleptic agents may also be associated with adverse effects, including extrapyramidal neurological side effects and possible worsening of depression as a result of induction of akathisia (603–606). Given the fact that treatment of psychotic disorders with second-generation antipsychotic agents is associated with lower risks of some, particularly extrapyramidal-neurological, adverse effects (512, 513, 596), use of first-generation antipsychotics in individuals with suicidal behaviors currently is usually reserved for those needing the enhanced treatment adherence afforded by depot forms of medication or those whose psychosis has not responded to a second-generation antipsychotic, or when economic considerations are compelling.

In the United States, the second-generation antipsychotic medications, such as aripiprazole, clozapine, olanzapine, quetiapine, risperidone, and ziprasidone, are now used to treat the majority of individuals with schizophrenia or schizoaffective disorder. In addition to their use as first-line agents in the treatment of schizophrenia, the second-generation antipsychotic agents

may also be indicated for use in individuals with other psychotic disorders as well as in patients with bipolar disorder, particularly during manic episodes. Among the second-generation antipsychotic agents, clozapine has generally been reserved for use when psychotic symptoms have not responded to other antipsychotic medications. As for effects on suicide attempts and suicide, clozapine is the best studied of any of the antipsychotic agents. Reductions in the rates of suicide attempts and suicides have been reported in specific studies of patients with schizophrenia treated with clozapine (607) as well as in registry studies (533, 606, 608–613), which may include patients with other psychotic diagnoses. Earlier studies could not eliminate the possibility that suicide rates were decreased by a nonspecific effect of increased clinical contact due to hematologic monitoring during clozapine therapy. However, significant reductions in suicide attempts and hospitalization for suicidality were also seen in a more recent blinded study comparing clozapine and olanzapine (603). The reduction of suicide attempts in both groups, compared to the rate in the year preceding the study, suggests that olanzapine may also offer some protection against suicide attempts. These findings suggest that use of clozapine might be considered earlier in the treatment of individuals with schizophrenia or schizoaffective disorders. At the same time, the potential benefits of treatment with clozapine need to be weighed against the potential for adverse effects with long-term clozapine treatment, including agranulocytosis, myocarditis, weight gain, and glucose dysregulation. Further study is needed to determine whether clozapine can reduce suicide risk in patients with other diagnoses or whether other second-generation antipsychotic drugs may reduce suicide risk in schizophrenia in comparison with one another or with first-generation antipsychotic drugs.

5. Antianxiety agents

Since anxiety is a significant and modifiable risk factor for suicide, utilization of antianxiety agents may have the potential to decrease this risk. More specifically, before accompanying depression has resolved, acute suicide risk may be associated with severe psychic anxiety, panic attacks, agitation, and severe insomnia (79). Although these symptoms may be reduced by aggressive short-term benzodiazepine treatment (lasting 1–4 weeks), research on suicide risk with antianxiety treatment is quite limited, with no clinical trial of antianxiety treatment showing short- or long-term antisuicide effects. However, a recent analysis of data obtained in controlled trials of treatments for anxiety disorders showed no significant differences in rates of suicidal behavior between those treated with active agents and those taking placebo (118).

To minimize severe recurrent (rebound) anxiety/agitation, long-acting benzodiazepines may be preferable to short-acting ones. At the same time, long-acting benzodiazepines may be more likely to cause daytime sedation. Psychiatrists should also keep in mind that benzodiazepines occasionally disinhibit aggressive and dangerous behaviors and enhance impulsivity, particularly in patients with borderline personality disorder (614, 615). For patients treated with benzodiazepines on a chronic basis, discontinuation of the benzodiazepine may be associated with an increase in suicide risk (616). As alternatives to benzodiazepines, second-generation antipsychotic medications or anticonvulsant medications such as divalproex or gabapentin may be helpful, although no specific research information on their potential to limit anxiety is available. Persistent, severe insomnia is also a modifiable risk factor for suicide and can be addressed with the use of benzodiazepines or sedating second-generation antipsychotics (617–619). Choice of a sedating antidepressant can also be considered for depressed patients with prominent insomnia.

6. ECT

ECT is sometimes used to treat patients who are acutely suicidal, and available evidence suggests that ECT reduces short-term suicidal ideation (620–622). The efficacy of ECT is best established in patients with severe depressive illness, but ECT may also be used in treating in-

dividuals with manic or mixed episodes of bipolar disorder, schizoaffective disorder, or schizophrenia, under certain clinical circumstances (623). ECT is especially likely to be considered for patients for whom a delay in treatment response is considered life-threatening. Such patients may include individuals who are refusing to eat because of psychosis or depressive symptoms as well as those with catatonic features or prominent psychosis. ECT may also be indicated for suicidal individuals during pregnancy and for those who have already failed to tolerate or respond to trials of medication. Although ECT is often raised as a possible treatment for chronically suicidal individuals with borderline personality disorder, ECT in such patients should target comorbid disorders that may be present, particularly comorbid major depressive disorder. In the absence of another indication for use, ECT is not indicated for the treatment of suicidality in borderline personality disorder. For further details on the clinical use of ECT, including the pre-ECT evaluation, the informed consent process, the numbers of treatments generally given, and the technical aspects of ECT administration, the reader is referred to APA's 2001 report, *The Practice of Electroconvulsive Therapy: Recommendations for Treatment, Training, and Privileging: A Task Force Report of the American Psychiatric Association* (623). Since there is no evidence for long-term or sustained reduction of suicide risk after an acute course of ECT, close clinical supervision and additional treatment with psychotropic medications are usually required during subsequent weeks and months.

B. PSYCHOTHERAPIES

In addition to pharmacotherapies and ECT, psychotherapies play a central role in the management of suicidal behavior in clinical practice. Although few rigorous studies have directly examined whether these interventions reduce suicide morbidity or mortality per se, clinical consensus suggests that psychosocial interventions and specific psychotherapeutic approaches are of benefit to the suicidal patient. Furthermore, in recent years, studies of psychotherapy have demonstrated its efficacy in treating disorders such as depression and borderline personality disorder that are associated with increased suicide risk. For example, cognitive behavior therapy, psychodynamic therapy, and interpersonal psychotherapy have been found effective in clinical trials for the treatment of these disorders (511, 515). A small randomized, controlled trial of psychoanalytically oriented partial hospital treatment for individuals with borderline personality disorder showed a beneficial effect on suicide attempts and self-harming behaviors during treatment and follow-up (624, 625). These observations as well as clinical experience lend support to the use of such psychotherapeutic approaches in the treatment of suicidal ideation and behaviors.

A number of other specific and nonspecific interventions have been assessed in small methodologically sound, randomized, controlled trials involving individuals with suicidal ideation or attempts as well as other forms of deliberate self-harm (626, 627). Dialectical behavior therapy has been studied for effects in a narrow range of potentially suicidal patients, particularly chronically suicidal or self-harming women with personality disorders. By targeting deficits in specific skills, such as emotional regulation, impulse control, anger management, and interpersonal assertiveness, dialectical behavior therapy may be effective in reducing suicide attempts when applied over longer time frames, especially for patients with personality disorders. There is also some preliminary evidence that cognitive and behavioral psychotherapy may reduce the incidence of suicide attempts in depressed outpatients (236, 626). However, other forms of cognitive behavior therapy that include a problem-solving component have shown mixed results (524, 628–632), suggesting the need for additional study. Other nonspecific interventions have been studied in relatively small samples and have similarly shown mixed results. Most of these studies are limited in the size and scope of the patient population and provide only narrow support for an effect on suicidal behaviors (633).

V. DOCUMENTATION AND RISK MANAGEMENT

A. GENERAL RISK MANAGEMENT AND DOCUMENTATION ISSUES SPECIFIC TO SUICIDE

Risk management is an important component of psychiatric practice, especially in the assessment and management of patients at risk for suicide. Clinically based risk management is patient centered and supports the therapeutic alliance and the treatment process. The most frequent lawsuits, settlements, and verdicts against psychiatrists are for patients' suicides. Thus, when treating a patient with suicidal behaviors, it is important to be aware of and pay attention to certain general risk management considerations, which are summarized in Table 9.

Documentation of patient care is a cornerstone of medical practice, but it is also essential to risk management (634, 635). If a malpractice claim is brought against the psychiatrist, documentation of suicide risk assessments assists the court in evaluating the many clinical complexities and ambiguities that exist in the treatment and management of patients at suicide risk. The failure to document suicide risk assessments and interventions may give the court reason to conclude they were not done. For patients who are hospitalized, it is also important to document the aspects of the risk assessment that justify inpatient treatment, particularly when it is occurring on an involuntary basis (636). Thus, it is crucial for the suicide risk assessment to be documented in the medical record.

Despite the time burdens faced by the psychiatrist, documentation is best done just after the suicide assessment is completed. Reference to the reason for the assessment (e.g., relapse, worsening, a reversal in the patient's life) will set the context for the evaluation. Subsequent discussion reviews the factors that may contribute to increased shorter-term or longer-term suicide risk as well as the reasoning process that went into the assessment. Clinical conclusions and any changes in the treatment plan should also be noted, along with the rationale for such actions. If other interventions or actions were considered but rejected, that reasoning should be recorded as well.

Consider the example of a patient who was in remission after a prior hospitalization for a suicide attempt but who recently had a relapse or a recurrent episode. The psychiatrist may document that suicidal ideation is present but that there is no evidence of a specific plan or specific symptoms that would augment risk (i.e., agitation, severe anxiety, severe insomnia). It may also be noted that the patient is under increased stress and is in some distress but is responsive to support. On the basis of the patient's willingness to accept help and the lack of evidence of acute suicide risk factors, continued outpatient management may be reasonable, with changes in the treatment plan, such as increasing the frequency of visits, perhaps increasing anxiolytic medication doses temporarily, and perhaps talking with a supportive relative or friend to obtain more information and to solidify the patient's support system.

In all settings, the psychiatrist should be aware that suicide risk assessment is a process and never simply an isolated event. Specific points at which reassessment may be indicated have been detailed in Table 2. On inpatient units, important points of documentation of assessment occur at admission, changes in the level of precautions or observations, transitions between treatment units, the issuance of passes, marked changes in the clinical condition of the patient, and evaluation for discharge (637). In particular, the determination of the level of suicide precautions (one-to-one versus every-15-minute checks, etc.) should be based on the patient's clinical presentation and be supported by a clinical rationale. Because care in inpatient settings is generally delivered by a multidisciplinary treatment team, it is important for the psychiatrist either to review the patient's records regularly or to communicate verbally with staff throughout the patient's hospital stay. At the time of the patient's discharge from the hospital, risk-benefit assessments for both continued hospitalization and discharge should be documented, and follow-up arrangements for the patient's outpatient care should be recorded.

TABLE 9. General Risk Management and Documentation Considerations in the Assessment and Management of Patients at Risk for Suicide

Good collaboration, communication, and alliance between clinician and patient

Careful and attentive documentation, including:

- Risk assessments
- Record of decision-making processes
- Descriptions of changes in treatment
- Record of communications with other clinicians
- Record of telephone calls from patients or family members
- Prescription log or copies of actual prescriptions
- Medical records of previous treatment, if available, particularly treatment related to past suicide attempts

Critical junctures for documentation:

- At first psychiatric assessment or admission
- With occurrence of any suicidal behavior or ideation
- Whenever there is any noteworthy clinical change
- For inpatients, before increasing privileges or giving passes and before discharge

Monitoring issues of transference and countertransference in order to optimize clinical judgment

Consultation, a second opinion, or both should be considered when necessary

Careful termination (with appropriate documentation)

Firearms

- If present, document instructions given to the patient and significant others
- If absent, document as a pertinent negative

Planning for coverage

In outpatient settings, the process of suicide risk assessment and documentation typically occurs during the initial interview; at the emergence or reemergence of suicidal ideation, plans, or behavior; and when there are other significant changes in the patient's condition. Revisions of the treatment plan are appropriately noted at these times. For patients in psychoanalysis or modified psychoanalytic treatment, the psychiatrist may elect to follow the charting recommendations of the psychoanalytic subspecialty practice guideline (638).

B. SUICIDE CONTRACTS: USEFULNESS AND LIMITATIONS

As originally designed, the suicide prevention contract, which is sometimes known as a no-harm contract, was intended to facilitate management of the patient at suicide risk (639). Although in the era of managed care, suicide prevention contracts are increasingly being used with patients at risk for suicide, the patient's willingness (or reluctance) to enter into a suicide prevention contract should not be viewed as an absolute indicator of suitability for discharge (or hospitalization). In addition, since the utility of the suicide prevention contract is based on subjective belief rather than objective evidence, it is overvalued as a clinical or risk management technique. Furthermore, the suicide prevention contract is not a legal document and cannot be used as exculpatory evidence in the event of litigation (640). Thus, the suicide prevention contract cannot and should not take the place of a thorough suicide risk assessment (637).

Although suicide prevention contracts are commonly used in clinical practice (429), no studies have shown their effectiveness in reducing suicide. In fact, studies of suicide attempters and of inpatients who died by suicide have shown that a significant number had a suicide prevention contract in place at the time of their suicidal act (212, 218, 430). Consequently, although verbal and written suicide prevention contracts have each been proposed as aids to assessing the

therapeutic alliance, their limitations should also be clearly understood (641). Relying on suicide prevention contracts may reflect the clinician's understandable but not necessarily effective attempt to control the inevitable anxiety associated with treating patients at suicide risk. At the same time, undue reliance on a patient's suicide prevention contract may falsely lower clinical vigilance without altering the patient's suicidal state.

Some clinicians gauge the patient's suicidal intent by his or her willingness to formalize the alliance by a written or an oral contract. For example, when discussing a suicide prevention contract, some patients will state openly that they cannot be sure that they can (or will want to) call the psychiatrist or other treatment team members if self-destructive impulses threaten. Patients who reject a suicide prevention contract are communicating that they see the therapeutic alliance as suboptimal or that they feel unable to adhere to such a contract. Consequently, patients who refuse to commit to contracts against suicide put the clinician on notice that the therapeutic alliance and the level of suicide risk should be reassessed. An alternative approach to suicide prevention contracts proposed by Miller et al. (642) relies on the basic tenets of informed consent and includes discussion of the risks and benefits of treatment and management options with the patient as a means of assessing his or her ability to develop and maintain a therapeutic alliance. In inpatient settings such discussions can emphasize the availability of the clinical staff and be used as a way to educate the patient about options for dealing with suicidal impulses.

Regardless of their potential advantages, suicide prevention contracts are only as reliable as the state of the therapeutic alliance. Thus, with a new patient, the psychiatrist may not have had sufficient time to make an adequate assessment or to evaluate the patient's capacity to form a therapeutic alliance, creating little or no basis for relying on a suicide prevention contract. As a result, the use of suicide prevention contracts in emergency settings or with newly admitted and unknown inpatients is not recommended. Furthermore, patients in crisis may not be able to adhere to a contract because of the severity of their illness. Suicide prevention contracts are also ill-advised with agitated, psychotic, or impulsive patients or when the patient is under the influence of an intoxicating substance. For these individuals, as for all patients presenting with suicidal behaviors, the psychiatrist must be ever mindful of the need for ongoing suicide assessments.

C. COMMUNICATION WITH SIGNIFICANT OTHERS

The confidential nature of the doctor-patient relationship is a fundamental aspect of the psychotherapeutic process. Consequently, the psychiatrist will need to manage the tension between this requirement and the wish to act in the patient's best interest. The default position is to maintain confidentiality unless the patient gives consent to a specific intervention or communication. However, in maintaining a safe environment for the patient, significant others may need to be contacted to furnish historical information or carry out specific tasks such as removing firearms from the home. If the psychiatrist determines that the patient is (or is likely to become) dangerous to him- or herself or to others and the patient will not consent to interventions that aim to reduce those risks, then the psychiatrist is justified in attenuating confidentiality to the extent needed to address the safety of the patient and others. More specifically, the 2001 edition of *The Principles of Medical Ethics With Annotations Especially Applicable to Psychiatry* states: "[P]sychiatrists at times may find it necessary, in order to protect the patient or the community from imminent danger, to reveal confidential information disclosed by the patient" (Section IV, Annotation 8) (643). As with many situations involving the suicidal patient, such decisions require much clinical judgment in weighing the effects of breaching confidentiality on the therapeutic relationship against the potential safety risks for the patient or others. It should also be noted that the psychiatrist can listen to information provided by friends or family without violating confidentiality by disclosing information about the patient to the informant. In addition, in an emergency situation, necessary information about the patient can be communicated with police and with emergency personnel, including medical staff and emergency medical technicians.

D. MANAGEMENT OF SUICIDE IN ONE'S PRACTICE

Because psychiatrists work with individuals who are by definition at increased risk for suicide, suicides can and do occur in clinical practice despite the best efforts at suicide assessment and treatment (489, 491). At least half of psychiatrists can expect in the course of their practice that one of their patients will die from suicide (644, 645). A patient's suicide is among the most difficult professional experiences encountered by a psychiatrist. It can lead to symptoms of posttraumatic stress disorder, shock, anger, grief, guilt, isolation, shame, diminished self-esteem, and concern about reactions of colleagues (646, 647). In one study (644), approximately half of the psychiatrists who had lost a patient to suicide experienced stress levels comparable with those of persons recovering from a parent's death. The significant effects of a patient's suicide on the psychiatrist, especially posttraumatic stress responses (644), suggest that support for the psychiatrist and a review of events leading to the suicide are warranted. Specific training may also be useful in helping the psychiatrist deal with the aftermath of a patient's suicide (644). In addition to receiving support from colleagues after a patient's suicide, some psychiatrists find it helpful to seek consultation or supervision to enable them to continue to respond effectively in working with other patients.

After a patient's suicide, clinicians may experience conflicting roles and concerns. However, a number of steps can be taken to facilitate the aftercare process. Many psychiatrists find it helpful to consult with a colleague or with an attorney. In addition, the psychiatrist should ensure that the patient's records are complete. Any additional documentation included in the medical record after the patient's death should be dated contemporaneously, not backdated, and previous entries should not be altered.

Conversations with family members can be appropriate and can allay grief and assist devastated family members in obtaining help after a suicide. This recommendation is based primarily on humanitarian concerns for survivors, but this approach may also have a powerful, though incidental, risk management aspect. Nonetheless, attorneys advise clinicians in two very different ways on the issue of suicide aftercare. After a bad outcome, some attorneys recommend that the case be sealed and no communication be established with the family, except through the attorney. Other attorneys encourage judicious communication or consultation, if indicated. If this approach is taken, the psychiatrist should concentrate on addressing the feelings of the family members rather than specific details of the patient's care. In addition, in speaking with survivors, care must be exercised not to reveal confidential information about the patient and not to make self-incriminating or self-exonerating statements, since these statements may further distress the family and provide a spur to litigation. The individuals who lived with the patient before the suicide not only currently experience intense emotional pain but also shared it with the patient before death. Thus, a number of lawsuits are filed because of the clinician's refusal to express, in any way, feelings of condolence, sadness, sympathy, or regret for the patient's death. A number of states have statutes that prohibit statements, writings, or benevolent human expressions of sympathy such as condolences and regrets from being admissible as evidence of an admission of liability in a civil action (648). However, statutes often distinguish between the part of a statement that is an expression of sympathy and the part of a statement that expresses fault, e.g., in the case of an automobile accident, "I'm sorry you were hurt" (inadmissible as evidence of liability) versus "I was using my cell phone and just didn't see you coming" (admissible as evidence of liability). Consequently, it may be useful for psychiatrists to know whether an apology statute is applicable within their jurisdiction and, if so, to know the specific provisions of the statute. The individual psychiatrist must use his or her clinical judgment to decide whether attending the patient's funeral would be appropriate. It may also be helpful to include a risk manager in this decision process.

Many occasions arise in which information is requested after a patient's death. As a general rule, written authorization should be obtained from the executor or administrator of the deceased patient's estate before releasing a copy of the medical records. If the estate has been settled and an executor or administrator no longer exists, a copy of the medical records should be released only to properly appointed legal representatives (649).

E. MENTAL HEALTH INTERVENTIONS FOR SURVIVING FAMILY AND FRIENDS AFTER A SUICIDE

The survivors of suicide are more vulnerable to physical and psychological disorders and are at increased risk of suicide themselves (see Section II.E.6, "Family History"). Although there are relatively few systematic studies of adult bereavement after suicide, existing studies suggest that emotional, social, and physical conditions of survivors are significantly changed after the suicide of a relative. Within 6 months after a suicide, 45% of bereaved adults report mental deterioration, with physical deterioration in 20% (650). Symptoms of depression, posttraumatic stress, guilt, and shame as well as somatic complaints are prevalent during that period and are more severe among parents of deceased children (650–652). While the majority of bereaved adults within 6 months after a suicide acknowledge a need for intervention, only approximately 25% seek psychiatric treatment (650). Despite this low rate of treatment, the majority of bereaved adults adapt well in the long term (653, 654).

The most comprehensive data on bereavement after suicide exist for youths. These data indicate that within 6 months after the suicide of a friend or sibling, symptoms of major depressive and posttraumatic stress disorders are prevalent among bereaved youths (145, 651, 655). The long-term outcomes, up to 18 months, of adolescents whose friends had died by suicide suggest the incidence of major depressive disorder is higher in those who had depression before the friend's suicide, intermediate in those who developed depression immediately after the suicide, and lowest in those who were not depressed immediately after the suicide (656). Those who became depressed after the death were closer to the friend who died by suicide, showed more intense grief, and had more intense exposure to the suicide. Within 6 years of the suicide of a friend, adolescents with syndromal levels of traumatic grief were five times more likely to report suicidal ideation than those without traumatic grief (657). However, there was no greater incidence of suicide attempts among adolescents with a friend who had died by suicide than among adolescents who did not know someone who died by suicide. Adolescent siblings of youths who died by suicide had a sevenfold increased risk for developing major depressive disorder within 6 months (651). However, in a related 3-year follow-up of siblings of adolescents who died by suicide, the siblings suffered more significant grief than the friends of the adolescents who died by suicide, although the rates of psychiatric disorders in follow-up were similar to those for adolescents who did not have a friend or sibling who died by suicide (651).

These studies suggest an increased risk of psychiatric symptoms and impairment after the suicide of a relative. As a result, psychiatric intervention should be offered to family members shortly after the death and maintained to reduce risk for psychiatric impairment. Such intervention is particularly important for youths and for those who witnessed the suicide or were at the scene of the death. The goals of psychiatric intervention include the identification and treatment of major depressive and posttraumatic stress disorders as well as related symptoms (658, 659). Longer-term follow-up with evaluation and intervention for adolescents bereaved after the suicide of a relative or friend is also indicated to decrease the risk for recurrent depression and other morbidities (660). Furthermore, a family approach to evaluation and intervention is needed for those who are bereaved after an adolescent's suicide. Evaluation and treatment of grief may be similarly important in reducing risk for suicidal ideation among youths who are bereaved as a result of the suicide of a person who is emotionally important to them. For all family members and close friends of individuals who die by suicide, referral to a survivor support group can be helpful.

PART B:
BACKGROUND INFORMATION AND REVIEW OF AVAILABLE EVIDENCE

VI. REVIEW AND SYNTHESIS OF AVAILABLE EVIDENCE

A. FACTORS ALTERING RISK OF SUICIDE AND ATTEMPTED SUICIDE

1. Demographic factors

a) Age

As shown in Table 10, suicide rates vary with age, gender, and race or ethnicity. Annual rates in the general U.S. population rise sharply in adolescence and young adulthood, plateau through midlife, then rise again in individuals over age 65. The increased rates of suicide in youths are even more dramatic in some ethnic and racial subgroups of the population. For example, the suicide rate among American Indian males between ages 15 and 34 years averaged about 36 per 100,000 during the period from 1979 to 1993, whereas Alaska Native males between ages 14 and 19 years had an even more dramatic rate, at 120 per 100,000 (661). Black male youths, who were historically at low risk for suicide, now have a suicide rate comparable to their white peers. Although the suicide rate in adolescents, like the overall U.S. suicide rate, has dropped in the past decade, the relative suicide risk of youths remains high, and this has been attributed to increases in alcohol and substance abuse (662), breakdown in extended family and intergenerational support, and increased availability of firearms, especially for young African American males (663).

Individuals over age 65 are disproportionately represented among those who die by suicide. Compared with suicide rates in men ages 55 to 64 years, suicide rates in men over age 85 are two- to threefold higher for all races except African Americans. For elderly women, suicide rates are relatively unchanged with increasing age, with the exception of Asian women over age 85, whose suicide rate increases threefold from middle age.

Overall suicide rates among those over age 65 have decreased substantially over the course of the last century, with a further decrease over the past decade. Although the reasons for the decline are unknown, a variety of mechanisms have been postulated, including improved access to social and health care resources by older adults with the implementation of Social Security and Medicare legislation and the more widespread use of safe and effective antidepressant medications (664). The incidence of suicide among elderly persons may increase again, however, as the large, post–World War II baby boom generation continues to age. Relative to age groups born in earlier or later periods, baby boomers have been distinguished by suicide rates that have been comparatively higher at all ages (665). Of additional concern is the fact that elders are the fastest growing segment of the U.S. population. Thus, as large numbers of this high-risk cohort enter the phase of life associated with greatest risk, the absolute number of suicides among older adults may increase dramatically (666).

TABLE 10. Suicide Rates in the United States by Age, Gender, and Race or Ethnicity[a]

	Non-Hispanic White		Non-Hispanic Black		Hispanic		Asian/Pacific Islander		American Indian/ Alaska Native	
Age (years)	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
<15	0.93	0.25	0.79	0.12	0.44	0.15	0.24	0.25	1.78	0.36
15–24	18.98	3.25	14.66	2.32	13.23	2.21	10.86	3.29	36.81	8.78
25–34	23.89	5.34	16.96	2.76	13.66	1.94	12.81	3.86	34.37	12.52
35–44	26.42	7.74	13.67	2.81	12.69	2.69	9.44	3.15	34.04	9.10
45–54	25.71	7.98	11.75	2.60	12.75	3.15	10.86	3.25	21.63	5.81
55–64	22.09	6.41	8.02	1.60	10.88	1.37	9.75	3.92	23.54	1.38
65–74	25.15	4.65	11.06	0.95	14.52	1.55	9.75	3.57	21.39	0.00
75–84	41.29	4.24	12.16	2.40	21.59	1.73	25.10	7.72	4.91	0.00
>84	60.68	4.63	12.04	0.46	21.68	0.74	38.24	9.34	0.00	0.00

[a]Suicide rates per 100,000 in the United States in the year 2000 for ICD-10 codes X60–X84, Y87.0. From the Web-Based Injury Statistics Query and Reporting System, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention (11).

Suicidal ideation and suicide attempts are more frequent in younger age groups than in later life (14). Kuo et al. (29), using prospectively gathered data from the Epidemiologic Catchment Area (ECA) survey, found a progressive decrease in the annual incidences of suicidal ideation and suicide attempts with increasing age. Compared with the rate in individuals over age 65, the rate of suicide attempts was 10-fold greater in those ages 18 to 29 years, at approximately 310 per 100,000 person-years. The rate of suicidal ideation in individuals ages 18 to 29 was approximately 630 per 100,000 person-years, a rate that was sixfold greater than that in those over age 65. Duberstein et al. (13), in a study of adults age 50 years and older, also found that people are less likely to report suicidal ideation as they age.

In other studies, estimates of the prevalence of suicidal ideation in older adults have varied with the population sampled and the site, time frame, and study methods. Lish and colleagues (667) found that 7.3% of an older sample in Department of Veterans Affairs (VA) primary care practices had thoughts of suicide, and elders with a history of mental health treatment were at far greater risk. Callahan and colleagues (668) used a far more stringent definition of suicidal ideation, limited ascertainment to within the past week, and required the ideation to include a specific suicide plan. They found that 0.7%–1.2% of elders in primary care had suicidal ideation, all of whom had a simultaneous mood disorder. Skoog et al. (669), in a survey of nondemented Swedes age 85 years and older, inquired about the presence of both active and passive suicidal ideation in the month preceding the interview. They found that 16% of the subjects had thoughts of suicide. Again, the rate was higher in subjects with mental disorder, in those taking anxiolytic and neuroleptic agents, and in those with significant physical illness. Among community-dwelling Floridians 60 years of age and older, less than 6% reported ever having had suicidal thoughts in a study by Schwab et al. (670), while in the Berlin Aging Study (671) 21% of subjects over age 70 reported having had suicidal ideation. Again, psychiatric illness was present in virtually all subjects, suggesting a need for careful screening for psychiatric disorder in elders with suicidal ideation.

b) Gender

In the United States, epidemiologic data show that suicide is more frequent in men than in women. For example, data from the National Center for Health Statistics for the year 2000 showed an age-adjusted suicide rate for males that was approximately 4.5-fold that for females (18.08 per 100,000 and 4.03 per 100,000, respectively) (11). This differential is comparable to the male-to-female ratio for suicide found in the National Longitudinal Mortality Study for the years 1979 to 1989 (672). Within the U.S. population, males are disproportionately represented among deaths by suicide in all racial and ethnic groups, with rates that range from more than 5.5-fold greater than that for females among African Americans and Hispanics to threefold greater than that for females among Asian/Pacific Islanders. This is not the case in other parts of the world, however. For example, in China the suicide rate for women is 25% higher than that for men (18).

The male-to-female predominance in suicide in the United States persists across the lifespan. Adolescent and young adult males are about 5.5 times more likely to die from suicide than females, whereas in midlife the male-to-female ratio is approximately 3.5 to 1. After about age 65, however, there is a steadily widening male-to-female ratio of suicide rates in all groups except Asians, with differences of more than 10-fold after age 80.

Differences in suicide risk with gender may be explained in part by factors that contribute to risk in general but that are present to differing degrees in men and in women. For example, men are less likely than women to seek help, admit the severity of their symptoms, or accept treatment, increasing their likelihood of suicide. In contrast, women tend to be less impulsive, have more social support, and have lower rates of comorbid alcohol and substance use disorders, all of which may have a protective effect (21). Among African American women, the potential protective factors of religion and extended kin networks have been suggested as possible explanations for this group's very low rate of suicide (22).

Despite their lower rate of suicide, women have higher rates of depressive illness than men (23, 673). Furthermore, in a 10-year follow-up study using data from the National Longitudinal Mortality Study, unemployment was associated with a greater and longer-lasting effect on the suicide rate of women compared to men (24). Compared to men, women also have an increased likelihood of having been physically or sexually abused, which may also increase the risk for suicide (36). The relative lethality of the suicide methods chosen by women remains less than those chosen by men; however, the recent, more frequent use of firearms among women suggests that this distinction may be diminishing (11, 674).

Suicide rates have also been examined in pregnant women and during the postpartum period. Dannenberg et al. (675) reviewed New York City medical examiner records of 293 pregnant or recently pregnant women ages 15 to 44 years who died of injury during a 4-year period. Of these, 15 died by suicide, a rate that was not significantly different from the expected age- and race-specific rates in the general population. However, Marzuk et al. (676) analyzed autopsy data from female residents of New York City who were of childbearing age and found the standardized mortality rate for suicide during pregnancy to be one-third the expected rate. Appleby (677), using retrospective population data for England and Wales from 1973 to 1984, also noted decreased rates of suicide among pregnant women and among women during the first year after childbirth, with SMRs of 0.05 and 0.17, respectively. In contrast to decreased suicide rates for women in general during pregnancy and the puerperium, Appleby et al. (27) subsequently found an extremely high suicide rate among women who had been psychiatrically hospitalized during the postpartum period. In this study of 1,567 women admitted to Danish psychiatric hospitals within the first year after childbirth, the SMR for suicide within 1 year was more than 70 times the expected rate. Although risk was greatest within the first month postpartum, it persisted throughout the initial year after childbirth. In addition, women who died by suicide after childbirth often used violent methods. Thus, although evidence is limited, women with severe postpartum psychiatric disturbances appear to be at significantly increased risk during the initial year after childbirth. Other groups with a particularly increased postpartum risk include teenagers and women of lower socioeconomic status (27, 28). For women as a group, however, a protective effect seems to be present during pregnancy and the postpartum period (25).

In terms of suicide attempts, women in the United States are reported to attempt suicide three times as often as men. This female predominance of suicide attempters varies with age, however, and in older adults the ratio of female-to-male suicide attempters approaches 1:1 (11). Similar trends are observed in the incidence of suicidal ideation. For example, Kuo et al. (29), using data from 3,481 prospectively followed individuals from the Baltimore ECA study, found that females ages 18 to 29 years had a higher incidence of suicidal ideation and suicide attempts than their male peers. However, this female-to-male predominance in suicidal ideation and suicide attempts was not observed for older age groups or for the sample as a whole.

As noted earlier, women are more likely to have experienced domestic violence or physical or sexual abuse, all of which have been associated with higher rates of suicidal ideation and suicide attempts (32–34). In a study of psychosocial outcomes in 1,991 same-sex twin pairs, Nelson et al. (35) found that childhood sexual abuse was three times more common in women and was associated with an increased risk of attempting suicide. Borderline personality disorder is also present more often in women (515) and is itself associated with increased rates of suicidal ideation, suicide, suicide attempts, and other self-injurious behaviors. In addition, borderline personality disorder is particularly common in women who have experienced childhood sexual abuse, physical abuse, or both (31). As a result, physical and sexual abuse and domestic violence should be given particular consideration in the assessment and treatment of women with suicidal ideation, suicide attempts, and other self-injurious behaviors.

c) Race, ethnicity, and culture

Race, ethnicity, and culture are all associated with variations in rates of suicide. In the United States for the year 2000, the overall age-adjusted rates of suicide were highest in Native Amer-

icans and non-Hispanic whites, at 13.6 and 12.1 per 100,000, respectively (11). In contrast, the age-adjusted rate of suicide in Hispanics was substantially less, at 6.13 per 100,000, and was similar to the rates for non-Hispanic African Americans and Asian/Pacific Islanders, at 5.8 and 6.0 per 100,000, respectively.

For immigrant groups, suicide rates in general tend to mirror rates in the countries of origin, with trends converging toward the host country over time (40, 41). In a large epidemiological study, Singh and Siahpush (39) found that between 1979 and 1989, foreign-born men in the United States were 52% less likely to die by suicide than native-born men, but the difference narrowed in the older age cohorts. Data for immigrant women were not statistically significant because of the small number of deaths.

In the United States, racial and ethnic differences are also seen in the rates of suicide across the lifespan (Table 10). Among European-American non-Hispanic whites, Hispanics, and Asian/Pacific Islanders, the highest suicide rates occur during the senior years, in those over age 65. In contrast, among Native Americans and African Americans, the highest suicide rates occur during adolescence and young adulthood. For example, in Native American and African American males ages 15 to 24, suicide rates in the year 2000 were 36.81 and 14.66 per 100,000, respectively. Young African American men have been described as being caught in a cycle of drug abuse, criminal activity, and self-devaluation and may view an early death as inevitable or as an alternative to the wearying struggle that life has become (678). Additional risk factors for suicide in young African American males include substance abuse (662, 679), presence of a firearm (663), and in particular the combination of cocaine abuse and the presence of a firearm (679). Suicidal ideation and suicide attempts are also common in urban African American young adults, with 6-month prevalences of 1.9% and 0.4%, respectively (680).

In contrast to young African American males, African American women have a very low rate of suicide. Gibbs (22) attributes this low rate to the protective factors of religion, including the role of religion in the civil rights movement, women's central involvement in the church, and strong values for endurance in the face of adversity. Women-dominated kinship networks are also believed to be protective, providing flexible roles, resource sharing, and social support (681).

Although black women are less likely to die from suicide than white women, they attempt suicide and express negative emotional states such as hopelessness and depression just as frequently. In addition, both black men and black women are less likely than their white counterparts to pursue professional counseling in the face of depression or other mental illness. Instead, African Americans are more likely to view depression as a "personal weakness" that can be successfully treated with prayer and faith alone some or almost all of the time (682). When depression is discussed, it may be described in different terms such as having "the blues" or "the aching misery" or "being down" (678). Consequently, sensitivity to language and beliefs about illness are important in recognizing depression and other risk factors for suicide among African Americans.

Among Native Americans (American Indians and Alaska Natives), suicide also is predominately an epidemic of the young and is the second leading cause of death for Native Americans between ages 15 and 24 years. As with other racial and ethnic groups, Native American and Alaska Natives are a very heterogeneous population, with different tribal identities, varying degrees of urbanization, different levels of tribal organization, and diverse approaches to historical and cultural integration. For example, in a study of three groups of Native Americans in New Mexico, the Apache had the highest suicide rate (43.3 per 100,000) and the highest degree of acculturation but also had the lowest degree of social integration and generally viewed religion as unimportant (683). In contrast, the Navajo had the lowest suicide rate (12.0 per 100,000) and the lowest level of acculturation but had moderate social integration and were organized into bands with a strong matrilineal clan influence. In the third group, the Pueblo, the subgroup with the most acculturation, had a higher suicide rate than the most traditional subgroup, again suggesting an effect of acculturation on suicide risk. Acculturation has also been proposed as a contributor to the extremely high suicide rate in Alaska Native youths, which in

one study approached 120 per 100,000 (661). Theories to explain these high rates tend to rely on family disintegration, social disruption, and alcohol use (684), as well as rapid social and cultural changes associated with intensive energy development projects in the Arctic and the resulting stress of acculturation. In contrast, in Hawaiian youths, the relationship between acculturation and suicidal behavior is less clear, with increased numbers of suicide attempts in those with stronger Hawaiian cultural affiliation (685).

Research on suicide among Hispanics in the United States is limited and rarely differentiates among different Hispanic groups. In addition, many individuals of Hispanic origin are undocumented workers who are not represented in census data or epidemiological studies. Large-scale grouping of diverse ethnic groups also obscures intracultural variations in important social and economic categories. For example, Cuban American women and Mexican Americans and Puerto Ricans of both genders were reported to have lower than expected suicide rates, relative to 1-year prevalence of major depression, than were whites, blacks, and Cuban American males (23). In terms of suicidal ideation, higher levels have been reported in Central American immigrants experiencing heightened levels of acculturative stress (43). In addition, lifetime age- and gender-adjusted rates of suicidal ideation were significantly lower for Mexican Americans born in Mexico (4.5%) than for Mexican Americans born in the United States (13%) or for non-Latino whites (19.2%) (686). Similarly, rates of suicide attempt were lower among Mexican Americans born in Mexico (1.6%) and higher among both Mexican Americans born in the United States (4.8%) and non-Latino whites (4.4%). The rate of suicide attempt is also elevated among Hispanic youths, who had higher numbers of reported suicide attempts compared to non-Hispanic youths in a nationwide survey of high school students (687).

The suicide rate for Asians overall is the lowest of all of the major American ethnic groups, but Asian Americans themselves have diverse ethnic backgrounds, languages, and cultures. Some groups, such as the Japanese, have been in the United States for generations. Others, such as the Chinese, include both recent immigrants and descendants of 19th-century immigrants, whereas the Vietnamese have arrived in large numbers only since the 1960s. These individuals bring with them attitudes toward coping and suicide from their home countries, which can influence the circumstances of suicidal behavior (688). In Japan, for example, suicide is permissible or even appropriate in particular contexts, and ritual suicide has been an honorable solution to certain social dilemmas. For example, the disgrace of bankruptcy in Japan can shame the family for generations, making suicide a preferable way to resolve debt. When it is culturally important for a man to be physically healthy and able to support his family, suicide may be viewed as an option if a serious physical illness impairs his ability to function. For example, in Hawaii, 20.5% of suicides by Japanese American men occurred in individuals with health problems, in contrast to only 11.8% of suicides by Caucasian men and 3.0% by Hawaiian men (42). In addition, for individuals who come from a culture in which mental illness is highly stigmatized, receipt of a psychiatric diagnosis may increase the risk for suicide. Although Chinese societies have not generally codified suicide as socially acceptable, more recent suicide rates in China are quite high, particularly in women and in rural settings, where use of agricultural poisons is a common suicide method (18).

In the United States, acculturation and acculturative stress may be a contributor to suicide risk among Asian Americans. For most Asian Americans, the family unit is central to identity. Children are socialized into awareness that their individual actions reflect upon the entire family, including extended family members (689). While this feature may impede a family's willingness to seek treatment for a troubled relative, the strong sense of family as a support and source of obligation protects against suicide as well. At the same time, family conflict as a reason for suicide is more common in Eastern societies (42). For example, if a young woman from a traditional society experiences conflicts with her in-laws that have no apparent solution, the woman may be more likely to view suicide as an option than would someone from a different family system in which close family relationships are not as imperative. Transition to the individualistic, communication-oriented U.S.

society is a major and stressful change for many families (44). The group most at risk appears to be traditionalists who live in tight-knit groups resistant to acculturative processes. They appear to function relatively well until their elderly years, when the culture clash between the values of the larger society and the Confucian tradition of strong family identity results in alienation of elders and contributes to suicide in the style of the old country (44). For example, a major factor in the high suicide rate of elderly Asian/Pacific Islander women was reported to be the failure of younger family members to provide support for their elderly parents, especially widowed mothers (690). Such deaths occurred predominantly by hanging, which was traditionally seen as an act of revenge, since someone who died by hanging was believed to return to haunt the living as a ghost (690).

In summary, race, ethnicity, and culture may all influence population-based rates of suicide and suicide attempts. Of equal importance to the clinician, however, each of these factors may modify suicide risk within the individual. Views of death and cultural beliefs regarding suicide can vary widely, even among members of apparently homogeneous racial, ethnic, or cultural groups. Thus, as part of the assessment and treatment planning process, it can be helpful for the psychiatrist to explore the patient's beliefs about death and suicide and the role of cultural and family dynamics in these beliefs.

d) Marital status

Marital status has been correlated with variations in suicide mortality in a number of studies. Smith et al. (691) used data from the U.S. National Center for Health Statistics for the years 1979 to 1981 to calculate age-adjusted suicide rates for each marital status. Regardless of age or racial group, the suicide rate was consistently lowest in married individuals. An intermediate rate was seen in those who had never been married, with a relative risk that was about twice that in married individuals. The highest suicide rate was found for divorced or widowed individuals, with a relative risk that was about threefold greater than that in married individuals. Whereas divorced women had a higher age-adjusted suicide rate than widowed women, the opposite was true among men, with a particularly striking rate of suicide in young widowed men.

Kposowa (672) applied Cox proportional hazards regression models to data from the 1979–1989 follow-up of the National Longitudinal Mortality Study and made adjustments for age, sex, race, education, family income, and region of residence to estimate the effect of marital status on suicide risk. Although in this sample being single or widowed had no significant effect on suicide risk, divorced and separated persons had suicide rates that were more than twice that of married persons. Stratification of the sample by sex showed that the effect of marital status on suicide rates occurred only among men.

Luoma and Pearson (46) also examined whether marital status is associated with variations in suicide rates. Suicide rates broken down by race, 5-year age groups, sex, and marital status were calculated by using data compiled from the U.S. National Center for Health Statistics Multiple-Cause-of-Death Files for the years 1991 to 1996. Widowed white and African American men under age 50 were found to have substantial elevations in suicide rates, with 17-fold and ninefold higher rates, respectively, compared with married men under age 50. At younger ages, for women as well as for men, being widowed was associated with a higher suicide rate, compared with being married.

Using data from the National Suicide Prevention Project in Finland, Heikkinen et al. (402) investigated age-related variations in marital status as well as other social factors in a sample of 1,067 individuals who died by suicide during a 1-year period and for whom relevant data were available. Compared with the general population, individuals who died by suicide were more commonly divorced, widowed, or never married. Among individuals under age 50 who died by suicide, more males than females had never been married. Among those over age 50, more women than men were widowed.

Other data from Finland obtained through the Finnish Population Register and cause-of-death files also suggest that the rate of suicide is elevated among widowed individuals (45). Among

95,647 persons who were widowed during 1972–1976 and followed up to the end of 1976, 7,635 deaths were observed, of which 144 were due to suicide. During the initial month of bereavement, men had a much greater increase in suicide mortality than women (17.2-fold versus 4.5-fold), but this disproportionate ratio primarily resulted from occurrences of homicide-suicide. In the remaining first year of bereavement, men had a 3.1-fold increase in suicide mortality and women a 2.2-fold increase, and rates remained higher than expected throughout the follow-up period.

Overall, these studies suggest that married individuals have a significantly lower rate of suicide than unmarried individuals. In addition, elevations in the suicide rate are especially striking for widowed men in general and young widowed men in particular. What remains unclear is whether this protective effect of marriage on the suicide rate relates to specific benefits of marriage, such as a greater likelihood of social integration. In contrast, the decrease in social integration and the psychological experience of loss with widowhood and with divorce may increase the tendency for suicide. The suicide rate among divorced individuals could also be higher because individuals who stay married have a greater likelihood of stable mental health at baseline. Other confounding factors, such as differences in substance use or socioeconomic status with marital status, could play additional roles that should be considered in the assessment process.

e) Sexual orientation

It remains unclear whether suicide rates in gay, lesbian, and bisexual individuals differ from the suicide rate among heterosexual individuals. One psychological autopsy study compared gay males to all other similarly aged males in the sample and did not find any characteristics that distinguished the two groups (692). However, research on suicide among gay, lesbian, and bisexual individuals is particularly complex because of many factors, including small sample sizes, difficulties in achieving random sampling, problems in obtaining baseline prevalences, and problems in reliability of postmortem reports of sexual orientation. In addition, individuals may choose not to disclose their sexual orientation to researchers or may engage in same-sex behavior but not identify themselves as gay or lesbian.

The risks for suicide attempts and suicidal ideation in gay, lesbian, and bisexual individuals have been assessed by using several approaches. Fergusson et al. (51), analyzing longitudinal data gathered on a New Zealand birth cohort, found that those who identified themselves as gay, lesbian, and bisexual or reported having a same-sex partner since the age of 16 had elevated rates of suicidal ideation (odds ratio=5.4) and suicide attempts (odds ratio=6.2). A study by Cochran and Mays (50) examined lifetime prevalences of suicide-related symptoms among men with same-gender partners and found that approximately one-half (53.2%) of the men reported experiencing at least one suicide-related symptom in their lifetime, with a suicide attempt reported by 19.3%. In contrast, in men with female partners only, 33.2% had at least one suicide-related symptom and 3.6% reported a suicide attempt. Corresponding figures for those with no sexual partners were 28.1% and 0.5%, respectively. Using the population-based Vietnam Era Twin Registry, Herrell et al. (52) identified a subsample of 103 middle-aged male twin pairs in which one of the twins from each pair reported having a male sexual partner after age 18 while the other did not. Suicide attempts were more common in the men with same-gender sexual orientation, with 15% reporting a suicide attempt, compared with only 4% of their twin brothers. In the Twin Registry sample as a whole, which included 16 twin pairs concordant for having a male sexual partner after age 18 and 6,434 twin pairs concordant for having no adult same-gender partners, the men with same-gender sexual orientation had more than a fourfold increase in suicidal ideation and more than a 6.5-fold increase in suicide attempts.

Gay, lesbian, and bisexual youths may be at particular risk for suicidal behaviors. Paul et al. (53), in a study of a large urban population–based telephone probability sample of gay men, found that 21% had made a suicide plan and 12% had attempted suicide. Of the latter, almost one-half had made multiple attempts, and most had made their first attempt before age 25. The importance of sexual orientation to suicidal behaviors in youths is also highlighted by the find-

ings of a statewide population-based study of public high school students by Remafedi et al. (48). In this study, suicide attempts were reported by 28.1% of bisexual/homosexual males, 20.5% of bisexual/homosexual females, 14.5% of heterosexual females, and 4.2% of heterosexual males. For males, but not for females, a bisexual/homosexual orientation was associated with suicidal intent (odds ratio=3.61) and with suicide attempts (odds ratio=7.10).

Thus, although evidence is limited, there is clearly an elevated risk for suicide attempts among cohorts of gay, lesbian, and bisexual individuals that is particularly striking among youths. In addition to addressing risk factors such as psychiatric and substance use disorders in the assessment and treatment planning processes, it is also important for the clinician to address stresses that are unique to being gay, lesbian, or bisexual (e.g., disclosure of sexual orientation to friends and family, homophobia, harassment, and gender nonconformity). Since suicide attempts themselves increase the risk for later suicide, it is presumed that suicide rates may also be increased in gay, lesbian, and bisexual individuals. However, this hypothesis remains to be tested empirically.

f) Occupation

Occupational groups differ in a number of factors contributing to suicide risk. These factors include demographics (e.g., race, gender, socioeconomic class, and marital status), occupational stress, psychiatric morbidity, and occupationally associated opportunities for suicide. Although many studies have reported increased rates of suicide in specific occupational groups, most have not controlled for other suicide risk factors. In one study, however, that controlled for basic demographic correlates of suicide across 32 occupations (54), risk was found to be highest among dentists and physicians, compared with the rest of the working-age population, with multivariate logistic regression odds ratios of 5.43 and 2.31, respectively. The odds of suicide were also significantly higher in nurses (1.58 times the risk), social workers (1.52 times the risk), mathematicians and scientists (1.47 times the risk), and artists (1.30 times the risk). Rates of suicide among physicians have also been found to be elevated, compared with rates for other white male professionals, with white male physicians having a 70% greater proportionate mortality ratio for suicide (58). In well-designed epidemiological studies, police officers have generally not been found to be at higher risk for suicide than age- and sex-matched comparison subjects (54, 57).

Factors that may play a role in the increased suicide rates in specific professions may include occupational stresses, as is seen in helping professionals (54), or social isolation, as is seen in sheepherders, who had the highest suicide rate of 22 occupational groups studied in Washington State (56). Although data are inconsistent, additional work stress may occur with infrequent role sets such as female laborers or pilots (55, 57) or in nontraditional occupations (693). In some occupations, suicide rates may be influenced by greater access to lethal methods such as medications or chemicals, as in health care professionals, scientists, and agricultural workers (57).

Differential rates of psychiatric illness may be present in some occupations and may predate employment. Artists, for example, have higher rates of psychiatric morbidity and suicide than the general population. Highly educated people with depressive disorders also have a higher suicide rate. Among physicians, such individuals may tend to specialize in psychiatry (56).

In general, specific occupations do seem to be associated with an increased risk for suicide, but more research is needed to distinguish occupational from nonoccupational stressors (56) and to determine whether it is the occupation itself or associated factors such as psychiatric morbidity that affect suicide risk.

2. Major psychiatric syndromes

a) Mood disorders

Major depressive disorder and other depressive syndromes are the most commonly and most consistently identified axis I diagnoses in individuals who die by suicide (694, 695). For example, Robins et al. (60) found that among 134 persons who died by suicide, 98% were psychi-

atrically ill and most had depression or chronic alcoholism. Barraclough et al. (65), in a similar study, found that of 100 individuals who died by suicide, 93% were mentally ill and 85% had either depression or alcoholism. Henriksson et al. (59), using psychological autopsy methods to investigate current mental disorders among a random sample of 229 persons who died by suicide during a 1-year period in Finland, found that 93% of those persons had received at least one axis I diagnosis and that 59% had a depressive disorder.

In patients with bipolar disorder who die by suicide, the majority are experiencing either a depressive or mixed episode of illness (69, 72, 315). For example, Isometsa et al. (68) noted that among 31 patients with bipolar disorder identified in a group of 1,397 persons who died by suicide in Finland in a 12-month period, 79% died while in a major depressive episode and 11% while in a mixed state. In a study of more than 300 patients who were discontinued from lithium treatment, Baldessarini et al. (696) found that the majority of suicidal acts occurred either during a major depressive episode (73%) or during a dysphoric-mixed episode (16%).

In addition to being highly prevalent in individuals who die from suicide, mood disorders have long been associated with an increased risk for suicide. For example, in 1970, Guze and Robins (697) reviewed 17 studies that assessed the risk of suicide in individuals with primary affective disorders and calculated the frequency of suicide as a percentage of all deaths. High suicide rates were found, with the ultimate risk of suicide estimated to be about 15%, or approximately 30 times that seen in the general population. For major depression, review of the literature suggests that overall rates of suicide mortality range from 5% to 26% and are about twice as high for men as for women (694). However, these studies generally assessed severely ill patient populations and individuals early in the course of their illness, when suicide rates are known to be highest.

Several investigators have subsequently reexamined these estimates of lifetime suicide risk in individuals with mood disorders. For example, Inskip et al. (94), using cohort-based curve-fitting techniques and data from previous studies, estimated the lifetime risk for suicide in mood disorders to be 6%. In addition, Bostwick and Pankratz (77) used data from prior studies to calculate case fatality prevalences (the ratio of suicides to the total number of subjects) to determine suicide risks for three groups of patients with affective disorders—outpatients, inpatients, and suicidal inpatients. With this method, which provides a less biased estimate of risk, they found a gradation in suicide risk that varied with treatment setting as well as with hospitalization for suicidality. For example, in patients with mood disorders who were previously hospitalized for suicidality, the estimated lifetime prevalence of suicide was 8.6%, compared to a lifetime risk of 4% for those with a psychiatric hospitalization for any reason. For mixed inpatient/outpatient populations, the prevalence of suicide was 2.2%, whereas for the populations without affective illness, it was less than 0.5%. For individuals with major depressive disorder, Blair-West et al. (205) used age- and gender-stratified calculations to arrive at comparable estimates for lifetime suicide risk of 3.4%, with a lifetime risk for males more than six times than for females (6.8% versus 1.1%).

Harris and Barraclough (64), in their meta-analysis of suicide as an outcome in psychiatric illness, assessed relative suicide risk in mood disorder by calculating SMRs. Their analysis used data from published English-language studies that had mean or median follow-up periods of at least 2 years and that provided sufficient data to calculate ratios of observed to expected numbers of suicides. For patients with major depressive disorder, 23 studies that included a total of 351 suicides among more than 8,000 patients yielded an SMR of 20.35, or a 20-fold increase in risk. A key finding was that risk in patients with major depressive disorder was highest immediately after hospital discharge (698, 699). For patients with bipolar disorder, data from 15 studies including a total of 93 suicides among 3,700 subjects yielded an SMR for suicide of 15.05. Although patients with dysthymia also had an elevated SMR for suicide, of 12.12, the nine studies that contributed to this estimate were extremely heterogeneous in their findings and most had extremely small samples, which raises some question about the validity of this approximation.

Several studies have examined rates of suicide in longitudinal follow-up in individuals hospitalized for mood disorder. Hoyer et al. (75) used data from the Danish Psychiatric Case Register to determine SMRs for suicide among 54,103 patients (19,638 male and 34,465 female patients) who had an initial admission to a Danish psychiatric hospital between 1973 and 1993 and who received a mood disorder diagnosis. During the study period, 29% of the patients died, and of those, suicide occurred in 20%. Standardized mortalities for suicide were comparable for patients with ICD-8 diagnoses of unipolar major depression, psychotic reactive depression, and bipolar disorder, with SMRs of 19.33, 18.67, and 18.09, respectively. In contrast, the SMR for suicide in patients with neurotic depression was significantly less, at 10.51. In all diagnostic subgroups and regardless of age and gender, the risk of suicide was greatest during the first year after the initial admission, decreased over the subsequent 5 years, and then stabilized. Overall, the risk for suicide was comparable in men and women, except in patients with bipolar disorder, for whom the SMR for suicide was somewhat greater in women than in men (20.31 versus 18.09).

In a similarly designed study using data from a Swedish inpatient register, Osby et al. (73) obtained the date and cause of death for patients hospitalized between 1973 and 1995 with a diagnosis of bipolar disorder (N=15,386) or unipolar depressive disorder (N=39,182). SMRs for suicide were found to be significantly increased in women and in patients with a unipolar depressive disorder diagnosis (15.0 for male bipolar disorder patients, 20.9 for male unipolar depressive disorder patients, 22.4 for female bipolar disorder patients, and 27.0 for female unipolar depressive disorder patients). Suicide mortality was more pronounced in younger individuals and with shorter intervals from the index hospitalization. Although SMRs decreased in all age groups with increasing time of follow-up, some suicide risk persisted even at long follow-up intervals.

Baxter and Appleby (188) used the Salford (U.K.) Psychiatric Case Register to identify 7,921 individuals who had received psychiatric or mental health care and determined their mortality rates (estimated as rate ratios) over a follow-up period of up to 18 years. Among individuals with affective disorders, there was a 12.2-fold elevation in observed suicide mortality in men, compared to expected mortality based on population rates. For women, the relative increase in suicide mortality was even greater, with a 16.3-fold elevation.

Angst et al. (74) followed a sample of 406 hospitalized patients with mood disorders (220 with bipolar disorder and 186 with unipolar depressive disorder) on a prospective basis for 22 years or more and found an overall standardized mortality rate for suicide of 18.04, comparable to the SMRs found in the Swedish and Danish longitudinal follow-up studies. Sixty-one percent of the sample had manifested psychotic symptoms at least once over their lifetime, suggesting that this was a particularly ill group of patients. The suicide rate was greatest near the age of illness onset; however, from ages 30 to 70 years, the rate was remarkably constant, suggesting a persistence of risk throughout the illness course. The suicide mortality in women was greater than that in men (SMR of 21.87 for women, compared to 13.49 for men), in part reflecting the greater rate of suicide for men in the general population. Patients with unipolar depressive disorder had a significantly higher rate of suicide than patients with bipolar I disorder or bipolar II disorder, with an SMR for suicide of 26.7, compared with 12.3 for bipolar disorder patients. The SMR for suicide did not differ significantly between bipolar I disorder patients and bipolar II disorder patients.

Some evidence suggests that in individuals with mood disorders, the rate of suicide may be increasing over time. For example, Harris and Barraclough (64) noted that the suicide risk for patients with major depression in cohorts treated before 1970 was increased by 17-fold in contrast to a 36-fold increase in risk for cohorts treated after 1970. In the study described earlier, Hoyer et al. (75) noted an increase in both the absolute and relative risks for suicide over the 20-year study time period, and they suggested that the increase may have been related to changes in the health care delivery system and the availability of psychiatric inpatient services.

In addition, Baldessarini et al. (563) observed that the annualized rates of suicide and suicide attempts in patients with major affective disorders appear to have risen across the decades since 1970. This trend was sustained and statistically significant for both suicides and suicide attempts, as well as for treated and untreated samples considered separately. Although this apparent secular trend could reflect increased recruitment of more severely ill patients to more recent studies or increased reporting of suicidal behaviors, the percentage reduction of suicide risk with lithium treatment did not decline across the years, suggesting that the patient populations are in fact comparable and that the prevention of suicide in major affective disorders is becoming increasingly challenging (558). Furthermore, suicide attempts that do occur in individuals with major mood disorders may be more lethal than suicide attempts by individuals in the general population. The reported ratio of suicide attempts to deaths from suicide averages between 3:1 and 5:1 among persons with mood disorders, whereas in the general population the suicide attempt rate has been estimated to be about 10–20 times (average, 18 times) greater than the suicide rate, or about 0.3% per year (700).

For individuals with mood disorders, it is also important to note factors that are particularly associated with increased risk. Fawcett et al. (79, 313) determined time-related predictors of suicide in a sample of 954 psychiatric inpatients in the NIMH Collaborative Program on the Psychobiology of Depression, about one-third of whom had bipolar disorder and the rest of whom had other mood disorders. During the initial 10 years of follow-up, 34 patients died by suicide, an overall rate that was extremely low, at 0.36% per year. The first year of follow-up was the time of highest risk, with 38% of suicides occurring during that period. Within 1 year of admission, six factors were associated with suicide: panic attacks, severe psychic anxiety, diminished concentration, global insomnia, moderate alcohol abuse, and anhedonia. The three factors associated with suicide that occurred after 1 year were severe hopelessness, suicidal ideation, and history of previous suicide attempts. By 14 years, among individuals for whom follow-up information was available, 36 had died by suicide, 120 had attempted suicide, and 373 had no recorded suicide attempt (247). Analysis at that time point showed that patients who died by suicide and patients with suicide attempts shared core characteristics, including a history of previous suicide attempts, alcohol and substance abuse, impulsivity, and psychic turmoil within a cycling/mixed bipolar disorder. In contrast to suicide within 12 months of intake, which was predicted by clinical variables, suicide beyond 12 months was prospectively predicted by temperament attributes, such as higher levels of impulsivity and assertiveness. Stressful life events (701), executive dysfunction (702), and higher levels of depression (10, 78, 221, 222, 703) may also be associated with greater risk, as may an awareness of the discrepancies between a previously envisioned "normal" future and the patient's likely degree of future chronic disability (273).

In summary, mood disorders are consistently identified as conferring a significant increase in the risk for suicide as well as for suicide attempts. However, among individuals with mood disorders, a variety of factors commonly modify that risk and should be taken into consideration during the assessment and treatment planning processes. These factors include the specific mood disorder diagnosis and duration of illness, the type and severity of the mood episode, the prior history of treatment, the presence of comorbid diagnoses or specific psychiatric symptoms such as severe anxiety or agitation, and the occurrence of significant psychosocial stressors. It is important to note, however, that this increased risk of suicidal behaviors among individuals with mood disorders has been consistently shown to be modifiable with treatment (see Section VI.D, "Somatic Therapies").

b) Schizophrenia

Schizophrenia has also been associated with an increase risk of suicide in multiple studies. Harris and Barraclough (172), for example, analyzed data from 38 studies that had follow-up periods of up to 60 years. Acknowledging that some heterogeneity in the diagnosis of schizo-

phrenia across studies was likely as a result of changes in diagnostic criteria, the authors noted 1,176 suicides among more than 30,000 patients with schizophrenia, yielding an SMR for suicide in schizophrenia of 8.45. Baxter and Appleby (188), in a case registry study of long-term suicide risk in the United Kingdom, found an even higher 14-fold increase in rate ratios for suicide among individuals with schizophrenia. In contrast, using cohort-based curve-fitting techniques and data from 29 studies of mortality in schizophrenia, Inskip et al. (94) estimated the lifetime risk for suicide as 4%.

In addition to assessing suicide rates among patients with schizophrenia, longitudinal follow-up studies have also examined factors associated with increased risk of suicide. Black et al. (98) found that suicide occurred in 14 of 688 schizophrenia patients (2%) who were admitted to an Iowa psychiatric hospital over a 10-year period, with the majority of deaths occurring within 2 years of hospital discharge. Although women were found to be at relatively greater risk, the numbers of suicides significantly exceeded expected rates for both male and female patients. Nyman and Jonsson (101) found that suicide occurred in 10 of 110 (9%) young patients with schizophrenia who were hospitalized between 1964 and 1967 and followed for up to 17 years. In this group, suicide was associated with a more chronic course as well as with social and financial dependency. Dingman and McGlashan (103) longitudinally followed 163 Chestnut Lodge patients with a diagnosis of schizophrenia and noted that the 13 patients who died by suicide were predominantly male and had a later onset of illness, less chronic illness, better premorbid functioning, and a greater ability for abstract and conceptual thinking. At a later follow-up (mean=19 years), 6.4% of the Chestnut Lodge sample had died by suicide, and this group had exhibited fewer negative symptoms but more severe delusions and suspiciousness at index admission than those who did not die by suicide (93). A group of young psychotic patients who had not exhibited a chronic course was followed after discharge from an index hospitalization by Westermeyer et al. (83), who found that 36 patients died by suicide and 550 did not. Suicide occurred in about 9% of individuals with schizophrenia and was more likely during the early years of their illness, particularly within 6 years of initial hospitalization. At greater risk for suicide were unmarried white male patients with chronic symptoms, relatively high IQs, and a gradual onset of illness.

De Hert et al. (89) studied outcomes for 870 patients (536 men and 334 women) with schizophrenia (87%) or schizoaffective disorder (13%) after a mean duration of follow-up of 11.4 years. Sixty-three individuals died by suicide, yielding a suicide rate of 635 per 100,000 per year and an SMR for suicide of 39.7. The frequency of suicide in men was twice that in women, although the SMR and the age at the time of suicide did not differ significantly between the sexes. Of the suicides, 33 (52.4%) occurred while the patient was hospitalized (although only nine actually took place in the hospital) and 12 (19.1%) occurred during the first 6 months after discharge. When the patients who died by suicide were compared with an age- and sex-matched group of 63 patients from the remaining sample, a number of differences between the groups were observed. Those who died by suicide were more likely to have a family history of suicide, had had more and shorter hospitalizations and more past suicide attempts, and were more likely to have used a highly lethal method in prior suicide attempts. They also had higher total WAIS IQ scores and were more likely to have been psychotic or depressed or to have suffered a major loss in the 6 months before death or follow-up. Compared with control subjects, the patients who died by suicide were also less likely to have received community-based care and were less likely to have had a useful daily activity, remission of symptoms, or an early onset of prominent negative symptoms.

Among individuals with schizophrenia who die by suicide, a number of demographic factors seem to be present more often than in living control subjects. In a cohort of 9,156 patients with schizophrenia, Rossau and Mortensen (95) individually matched 10 control subjects to each of 508 individuals who were admitted to Danish hospitals between 1970 and 1987 and who later died by suicide. They found suicide risk to be particularly high during the first 5 days

after discharge, with some excess suicides during temporary hospital leaves. Increases in risk were also associated with multiple psychiatric admissions during the previous year, previous suicide attempts, previous diagnosis of depression, male sex, and previous admissions to general hospitals for physical disorders. Breier and Astrachan (102) compared 20 schizophrenia patients who died by suicide with a randomly selected sex-matched group of nonsuicidal schizophrenia patients and a group of persons without schizophrenia who died by suicide. Patients with schizophrenia who died by suicide were more likely to be men and tended to be young, white, and never married. In contrast to the persons without schizophrenia who died by suicide, the schizophrenia patients who died by suicide tended not to show a temporal relationship of suicide with suicide attempts or stressful life events.

Among individuals who died by suicide, comparisons have also been made between those with schizophrenia and those with other diagnoses. Heila et al. (100) used psychological autopsy data for 1,397 individuals who died by suicide over a 1-year period in Finland and compared the 92 individuals with schizophrenia (7%) to the remainder of the sample. They found that suicide occurred at any point during the course of schizophrenia and over a large age range. In addition, among the individuals with schizophrenia, 71% had a history of suicide attempts, and, particularly in women, active illness and depressive symptoms were often observed immediately before the suicide. Significant life events, however, were seen less often before suicide in individuals with schizophrenia than in those with other diagnoses (46% and 83%, respectively).

Other studies have found suicidal ideation and suicide attempts to be common among individuals with schizophrenia. For example, in the Chestnut Lodge sample, over an average of 19 years of follow-up, 40% of the patients with schizophrenia spectrum disorders reported suicidal ideation since their initial hospitalization, and 23% reported at least one suicide attempt (93). Radomsky et al. (80) evaluated lifetime rates of suicidal behavior among 1,048 consecutively admitted psychiatric inpatients with DSM-III-R psychotic disorders. Of the 454 individuals with a diagnosis of schizophrenia, 27.3% reported at least one lifetime suicide attempt, with an additional 26.4% reporting suicidal ideation only. For the 159 patients with schizoaffective disorder, 42.8% and 27% reported suicide attempts and suicidal ideation, respectively. Roy et al. (117) found that 55% of a series of 127 consecutively admitted patients with chronic schizophrenia had previously made a suicide attempt. Harkavy-Friedman et al. (108), in a sample of 104 individuals with schizophrenia or schizoaffective disorder, found that 33% had made a suicide attempt, with 60% of those reporting multiple attempts. Attempts were often medically serious, requiring medical inpatient care in 57% of cases and emergency medical evaluation in an additional 11%, and were associated with strong suicidal intent (in the 76% of patients for whom this information was available). As with suicide in schizophrenia, initial suicide attempts tended to occur early during the course of the illness.

A number of specific factors appear to increase the likelihood of a suicide attempt among individuals with schizophrenia. For example, in the study by Roy et al. (117), those who had attempted suicide had significantly more psychiatric admissions and were more likely to have experienced a major depressive episode or received antidepressant treatment, compared with those who had not attempted suicide. Young et al. (704), in a longitudinal study of 96 individuals with recent-onset schizophrenia who were followed for a 1-year period, noted that depression was moderately correlated with concurrent suicidality but was not independently associated with future suicidality, whereas the presence of suicidal ideation even at low levels increased the risk for significant suicidal ideation or a suicide attempt during the subsequent 3 months. In their sample, Harkavy-Friedman et al. (108) found that suicide attempts were reported to be precipitated by depression (27%), loss of a significant other or other stressful life event (24%), being bothered by psychotic symptoms (11%), and responding to command hallucinations (4%). In a subsequent study of 100 individuals with schizophrenia, Harkavy-Friedman et al. (106) found that 8% of suicide attempts were associated with command auditory hallucinations for suicide and that individuals with previous suicide attempts were at particularly increased risk. In a prospective study

of 333 patients with chronic schizophrenia (705), multivariate analysis suggested that current and lifetime suicide attempts and suicidal ideation were associated with hopelessness and possibly with greater levels of insight or higher cognitive functioning. Increased insight, specifically awareness of delusions and negative symptoms, has also been noted in individuals with schizophrenia who experience recurrent suicidal thoughts and behaviors (706).

In summary, an increase in the risks of suicide and suicide attempts is seen in individuals with schizophrenia and should be taken into consideration in the assessment and treatment planning process. Additional factors that modify risk include the duration of illness, the patient's insight into the illness's implications, the patient's history of treatment, and the presence of comorbid diagnoses or specific psychiatric symptoms, such as depression, hopelessness, or negative symptoms. As with mood disorders, however, increasing evidence also suggests that the risk of suicidal behaviors among individuals with schizophrenia can be modifiable with treatment (see Section VI.D, "Somatic Therapies").

c) Anxiety disorders

Data on lifetime rates of suicide among patients with anxiety disorders are limited but suggest that these diagnoses are associated with an increase in suicide risk. At the same time, it is not clear whether anxiety disorders represent an independent risk factor for suicide or whether this increased risk is attributable to the presence of depressive disorders or substance use disorders, which commonly co-occur with anxiety disorders.

Among broadly defined groups of individuals with anxiety disorders, increased rates of suicide have been seen in several studies. Khan et al. (118) used the U.S. Food and Drug Administration (FDA) database to assess the risk of suicide among patients who were participating in recent clinical trials of antianxiety medications and had diagnoses of panic disorder, social phobia, generalized anxiety disorder, posttraumatic stress disorder, or obsessive-compulsive disorder. Among the 20,076 patients, 12 died by suicide, yielding a suicide risk among patients with anxiety disorders of 193 per 100,000 patients, or at least 10-fold higher than that in the general population. This finding is particularly striking since the patients were receiving treatment and since current suicidality is generally an exclusion criterion for clinical trials. Allgulander (119) also noted an increased risk of suicide in individuals with anxiety disorders. Data on 9,912 patients with anxiety neurosis in the Swedish National Psychiatric Case Register between 1973 and 1983 yielded SMRs for suicide before age 45 of 6.7 and 4.9 for men and women, respectively. Suicide risk was highest within 3 months of discharge and was two- to threefold less than the risk in individuals with depressive neurosis.

Several studies have examined characteristics of patients with panic attacks or panic disorder who have died by suicide. Henriksson et al. (707) used data on suicides in Finland in a 1-year period to examine the relationship between panic disorder and suicide. All of the 17 persons with a current diagnosis of panic disorder who died by suicide—1.22% of the 1,397 suicides in Finland in the 1-year period—also had another axis I disorder, most often major depression. A substance use disorder was found in one-half of these individuals, with almost one-half of those persons also receiving an axis II diagnosis. These results are in accord with those of a study by Barraclough et al. (65), which found a principal diagnosis of either alcoholism or depression in virtually all persons who died by suicide and who had had a panic attack in the week before death.

Two smaller follow-up studies of patients with panic disorder yielded similar conclusions. Noyes et al. (122) found that 4% (three of 74) of patients with panic disorder followed up after 7 years had died by suicide, with an additional 7% (five of 74) having made a serious suicide attempt. Comorbid diagnoses, particularly major depression and axis II disorders, were more likely to be present in those who died by suicide and in serious suicide attempters. Coryell et al. (123) found that 35 years after an index admission, approximately 20% of 113 patients with panic disorder had died by suicide and that alcoholism and secondary depression may have had a role in those deaths.

Rates of suicidal ideation and suicide attempts are also increased in individuals with anxiety disorders, but again, comorbid diagnoses may play a role in mediating this effect. In a random sample of 18,011 adults from five U.S. communities derived from the ECA study, Weissman et al. (125) found that the presence of suicidal ideation and suicide attempts varied. Levels were highest among subjects with a lifetime diagnosis of panic disorder, followed by those who had panic attacks but not panic disorder and those with other DSM-III disorders but not panic attacks or panic disorder; lower levels were found in individuals with no prior panic attacks or DSM-III diagnoses. Weissman et al. also found that 20% of the subjects with panic disorder and 12% of those with panic attacks had made suicide attempts. Furthermore, this increase in risk was not solely attributable to comorbid diagnoses, since the lifetime rate of suicide attempts for persons with uncomplicated panic disorder was consistently higher than that for persons with no psychiatric disorder (7% and 1%, respectively) (708). This conclusion contrasted with the findings of Hornig and McNally (137), who reanalyzed the ECA data with the effects of comorbid disorders and sociodemographic variables controlled in the aggregate rather than singly. Using both stepwise and backward logistic regression analyses, they did not find panic disorder to be associated with a significant increase in risk for suicide attempts beyond that predicted by the presence of other disorders.

Other investigators have assessed other populations to determine whether panic attacks or panic disorder is associated with increases in suicidal behaviors. Pilowsky et al. (130), in a study of 1,580 adolescents in an urban public school system, found that suicidal ideation was three times more likely and a history of suicide attempts twice as likely in individuals with panic attacks, even after the effects of demographic factors, major depression, and substance use were controlled. Fleet et al. (136) assessed 441 consecutive patients who presented to an emergency department with chest pain and who underwent a structured psychiatric interview. Of the total sample, 108 (25%) met the DSM-III-R criteria for panic disorder. The investigators found that more of those with panic disorder had experienced suicidal ideation during the preceding week than of those without panic disorder (25% and 5%, respectively), even after controlling for the effect of coexisting major depression. In addition, of the 44 patients (10% of the sample) who had experienced suicidal ideation during the preceding week, 60% met the DSM-III-R criteria for panic disorder (709). Thus, in both of these populations, panic attacks or panic disorder was a significant risk factor for suicidal ideation or suicide attempts, independent of comorbid disorders.

Other studies have assessed psychiatric outpatients with panic disorder and have demonstrated substantial variability in its effect on suicidality. Cox et al. (124), for example, used the suicide questions from the ECA study to assess 106 patients with panic disorder and found that 31% of the patients reported suicidal ideation and 18% reported a history of suicide attempts. Very few individuals with suicidal ideation reported actual suicide attempts within the preceding year. However, when suicide attempts did occur, they were predominantly in the context of depressed mood. In a sample of 100 outpatients with panic disorder, Lepine et al. (129) found that 42% had a prior suicide attempt. Suicide attempters were more likely to be female or unmarried, and 88% of the patients met the DSM-III-R criteria for at least one additional diagnosis, predominantly major depressive disorder (52%) or substance use disorder (31%). Warshaw et al. (127) followed 498 patients with panic disorder and found a 6% risk of suicidal behaviors over a 5-year period. Being married or having children were protective factors, whereas mood disorders, substance use, eating disorders, personality disorders, female sex, and a prior history of suicide attempts were associated with increased risk. In the absence of other risk factors, the risk of a suicide attempt in persons with panic disorder was minimal. King et al. (126) studied 346 depressed outpatients and found a significant difference in the frequency of suicide attempts in those with a history of panic attacks compared with those without such a history (26.9% and 16.8%, respectively). Paradoxically, however, depressed patients with a history of infrequent panic attacks had a higher incidence of suicide attempts than those with panic disorder (32.3% and 21.5%, respectively). Friedman et al. (710) assessed 293 patients with panic

disorder, of whom 59 had comorbid borderline personality disorder. A past history of suicide attempts was reported by 25% of the patients with comorbid borderline personality disorder and by 2% of those without that comorbidity. In contrast, Beck et al. (128) found that none of the 73 patients with primary panic disorder in a study of 900 consecutive psychiatric outpatients reported having made a prior suicide attempt.

Other anxiety disorders, although less well studied, may also influence suicide attempts or suicidal ideation. For example, in recent clinical trials of new antianxiety medications that included patients with a broad range of diagnoses, the risk of suicide attempts was increased relative to the general population, with attempts occurring in 28 of 20,076 patients, for an annualized risk of 1,350 per 100,000 patients (118). Cox et al. (124) found that of 41 outpatients with a diagnosis of social phobia, 14 (34%) had experienced suicidal ideation and two (5%) had made a suicide attempt within the prior year, although five (12%) had at least one lifetime suicide attempt. Oquendo et al. (131) assessed 156 inpatients with a diagnosis of major depressive episode and found that those with comorbid posttraumatic stress disorder were more likely to have attempted suicide, a finding that was more prominent in women than in men and that was independent of the presence of borderline personality disorder. Schaffer et al. (132) retrospectively reviewed the assessments of 533 patients with major depression and found that suicidal ideation was present in 57.8%. Suicidal ideation was more likely to be present in the 43.2% of the sample that had a lifetime anxiety disorder, and this association was independent of either age or severity of depressive symptoms. In contrast, in a study of 272 inpatients with at least one major depressive episode, Placidi et al. (220) found that rates of panic disorder did not differ between the 143 patients who had attempted suicide and the 129 patients who had not. In fact, agitation, psychic anxiety, and hypochondriasis were more severe in the nonattempter group, and these effects were independent of severity of aggression and impulsivity. However, rates of comorbid borderline personality disorder were much greater in those who attempted suicide, which may have contributed to these findings.

Even subsyndromal anxiety symptoms may contribute to an increase in risk. For example, Marshall et al. (135) found that rates of suicidal ideation increased linearly and significantly with an increasing number of subthreshold symptoms of posttraumatic stress disorder. They reported that for the 2,608 of 9,358 individuals who were screened in 1997 as part of National Anxiety Disorders Screening Day and who reported at least one symptom of posttraumatic stress disorder of at least 1 month's duration, the risk of suicidal ideation was increased, even after controlling for the effect of comorbid major depressive disorder.

Anxiety disorders may be overrepresented among individuals with suicidal ideation or suicide attempts. Pirkis et al. (383) analyzed data from 10,641 respondents in the Australian National Survey of Mental Health and Wellbeing and found that the relative risk of anxiety disorder was increased 3.5-fold in individuals with suicidal ideation in the prior year and increased sevenfold in those with a suicide attempt in the prior year.

Thus, available evidence suggests that anxiety disorders, particularly panic disorder, may be associated with increased rates of suicidal ideation, suicide attempts, and suicide. It remains unclear whether panic attacks and panic disorder represent independent risk factors for suicide or whether elevations in suicidality associated with these disorders are simply a reflection of comorbidity with other disorders such as depression, substance use disorders, or personality disorders. Nonetheless, individuals with anxiety disorders warrant explicit evaluation and follow-up for comorbid diagnoses and for suicide risk. Psychiatrists should also be alert for masked anxiety symptoms and for anxiety disorders that are misdiagnosed as physical illnesses.

d) Eating disorders

Studies point to eating disorders in general as a risk factor for death and as a likely risk factor for suicide. For example, Harris and Barraclough (64) calculated SMRs for suicide using data from 15 studies and found a 23.1-fold increase in risk in patients with eating disorders. Herzog

et al. (138), in an 11-year longitudinal study of 246 women with eating disorders, noted a crude mortality rate of 5.1% and an SMR for death by any cause of 9.6. Three of the women died by suicide, yielding a significantly elevated SMR for suicide of 58.1.

The risk associated with specific eating disorders is less clear. Eckert et al. (139), in a similar longitudinal study, examined the clinical course and outcome of anorexia nervosa in 76 severely ill females. Although none of the deaths were attributed to suicide, by the time of 10-year follow-up, five subjects (6.6%) had died, yielding an almost 13-fold increase in mortality.

Coren and Hewitt (140) extracted data from all death certificates in the United States registered with the National Center for Health Statistics from 1986 through 1990. Of 5.5 million females who died in that period, 571 had anorexia nervosa listed as an underlying cause or accompanying condition of death. Of these, 1.4% died by suicide, compared to 4.1% of a matched control sample, suggesting that the risk of suicide in persons with anorexia nervosa is, if anything, lower than that in control subjects. However, substantial underreporting bias may be present, since personnel recording information on death certificates may not recognize anorexia as a contributory comorbid condition.

Eating disorders, particularly bulimia nervosa, have also been associated with an increased rate of suicide attempts, and, conversely, suicide attempters may have an increased rate of abnormal eating behaviors. Kent et al. (141) compared 48 women who were referred for psychiatric assessment after an act of deliberate self-poisoning with 50 control subjects who were evaluated in a hospital emergency department after a minor accidental injury. Even after controlling for the effect of differences in rates of depression, the investigators found that disordered eating behaviors were significantly more prevalent in the self-poisoning group. Compared to the general community, for whom surveys suggest rates of bulimia nervosa of 1%–2%, four subjects (8%) in the self-poisoning group met the diagnostic criteria for bulimia nervosa. Thus, awareness of eating disorders may be important in evaluating patients after a suicide attempt.

By the same token, suicide attempts may be more likely in women with eating disorders. Using anonymous survey data gathered from 3,630 girls in grades 6 through 12 in the upper Midwest, Thompson et al. (142) found that eating disturbances and aggressive behavior were significantly associated with substance use and with attempted suicide. In addition, adolescents reporting disturbed eating behaviors were three times more likely to report suicidal behaviors than were other respondents.

In summary, individuals with eating disorders may be at increased risk for suicidal behaviors. Anorexia nervosa seems more likely to be a potential risk factor for suicide, whereas bingeing, purging, and bulimia may be more likely to be associated with suicide attempts. The role of comorbid diagnoses in increasing the risk of suicidal behaviors remains unclear. Also unclear is whether the self-imposed morbidity and mortality associated with severe caloric restriction or bingeing and purging should be viewed as a self-injurious or suicidal behavior. Regardless, clinicians conducting suicide risk assessment should be attentive to the presence of eating disorders and especially the co-occurrence of eating disorders with other psychiatric disorders or symptoms such as depression or deliberate self-harm.

e) ADHD

The relationship between ADHD and suicidal behavior is unclear, with some but not all studies indicating an association between the diagnosis of ADHD and suicide attempts or suicide. To identify psychiatric risk factors for adolescent suicide, Brent et al. (145) used psychological autopsy data to match 67 adolescents who died by suicide to community control subjects. At the time of death, 89.6% of those who died by suicide had a psychiatric disorder, with major depression, bipolar disorder–mixed episode, substance use disorder, and conduct disorder seen at increased rates relative to the rates for the community control subjects. In contrast, the rate of ADHD in those who died by suicide was 13.4% and did not differ from the rate in the control subjects (145). Similarly, in a case-control study of adolescent suicide attempters, ADHD was actually less likely in those who attempted suicide than in the control subjects (146).

In a group of subjects between ages 17 and 28 years, Murphy et al. (144) compared 60 subjects with ADHD, combined type, to 36 subjects with ADHD, predominantly inattentive type, and to 64 community control subjects. A higher proportion of the group with ADHD, combined type (15%), reported attempting suicide, compared with the group with ADHD, predominantly inattentive type (2.8%), and the control group (0%). Compared to the control group, both ADHD groups had greater amounts of psychological distress, received more prescriptions for psychiatric medication and more types of psychiatric services, and had a higher prevalence of alcohol/cannabis use disorders and learning disorders. The groups did not differ in comorbidity of conduct disorder, major depressive disorder, or anxiety disorders. Patients with the combined type of ADHD are clinically more likely to present with distractible and impulsive behavior, whereas patients with the predominantly inattentive type of ADHD are more likely to present with problems of staring, daydreaming, confusion, passivity, withdrawal, and sluggishness or hypoactivity. These differences in clinical features may account for the differences in the numbers of suicide attempts in the two subgroups.

Nasser and Overholser (143) examined the lethality of suicidal behavior in 60 hospitalized adolescent inpatients who had recently attempted suicide. The subjects were divided into three equal groups on the basis of the qualities of their suicidal acts (nonlethal, low-lethal, and high-lethal). The groups did not differ significantly in terms of hopelessness, depression, substance abuse, and self-esteem or in diagnoses of major depression, adjustment disorder, substance abuse, and bipolar disorder. However, the group of high-lethal attempters included four individuals with a diagnosis of major depressive episode and comorbid ADHD. Thus, it may be the comorbidity of ADHD with other disorders that increases the relative lethality of suicide attempts.

In summary, evidence for an independent association between ADHD and risk for suicide or attempted suicide appears weak. Individuals with ADHD, combined type, seem to be at greater risk than those with ADHD, predominantly inattentive type, perhaps because of an increased level of impulsivity. In addition, there may be a relationship between ADHD and suicide risk that relates to comorbidity with conduct disorder, substance abuse, and/or depressive disorder. Given the frequent occurrence of ADHD in patients with other psychiatric disorders, it is important for psychiatrists to be aware that comorbid ADHD may augment the risk of suicidal behaviors.

f) Alcohol use disorders

The presence of an alcohol use disorder increases suicide risk. Estimates based on computerized curve fitting of data from 27 studies have suggested a 7% lifetime risk of suicide in individuals with alcohol dependence (94). Other approximations of lifetime suicide risk have ranged from 3.4% to as high as 15% (148, 157) but vary by country and depend on the definition of alcoholism used. In fact, the vast majority of studies have not used the DSM-IV criteria for alcohol use disorders, making comparisons across studies difficult. As a result, descriptions of studies in this document will use the diagnostic terms employed by the study authors.

Harris and Barraclough (64) used data from 32 publications, including findings for more than 45,000 individuals with follow-up periods for up to 30 years, to calculate an SMR for suicide of 5.86 among persons with alcohol abuse or dependence. The overall suicide rate for women with alcohol abuse or dependence was about 20 times the expected rate, whereas the rate for men was only about four times the expected rate. Beck et al. (227) also found a risk of suicide in alcoholics that was about fivefold greater than in nonalcoholics in a sample of 413 patients hospitalized for a suicide attempt and prospectively followed for 5–10 years. They also noted that the timing of suicides was spread throughout the follow-up, with no particular period of increased risk.

The association between alcohol use disorders and suicide is also demonstrated by psychological autopsy studies, which show alcohol use disorders to be common among individuals who die by suicide. For example, Henriksson et al. (59), in a random sample of 229 Finnish suicide deaths during a 1-year period, found that alcohol dependence was present in 43% of

cases. In the United States, Conner et al. (150) found that 39% of 141 individuals who died by suicide over a 2.5-year period had had a history of alcohol use disorder.

Significant rates of alcohol use were also seen in a sample of youth suicides that included older adolescents. Brent et al. (151) examined death certificates and coroners' reports for all suicides, undetermined causes of death, and questionable accidents for 10- to 19-year-old residents of Allegheny County, Pennsylvania, from 1960 to 1983. Altogether, 159 definite suicides and 38 likely suicides were noted, but the suicide rate increased markedly over the study period, particularly among white males ages 15–19 years. During the study period there was also a 3.6-fold increase in the percentage of suicides with detectable blood alcohol levels (12.9% in 1968–1972, compared to 46.0% in 1978–1983). In addition, the rate of suicide by firearms increased much faster than that by other methods (2.5-fold and 1.7-fold, respectively), and persons who died by suicide with firearms were almost five times more likely to have been drinking than individuals who used other suicide methods.

A number of factors have been specifically observed with suicide in individuals with alcohol use disorders (153). Murphy et al. (152), in a study of 50 alcoholics who died by suicide, found that 26% had experienced interpersonal loss within 6 weeks of their death. These findings were comparable to those in a prior group of 31 alcoholics who died by suicides, one-third of whom had experienced the loss of a close interpersonal relationship within 6 weeks of the suicide. An earlier study by Murphy and Robins (156) also found a high proportion of recent interpersonal disruptions, as did a study of suicides in San Diego by Rich et al. (67). To identify other factors associated with increased risk for suicide among alcoholics, a subsequent study by Murphy et al. (149) pooled these two similar groups of alcoholics who died by suicide and compared them to two control samples of white male alcoholics, one from a psychiatric patient population and one from the ECA community-based population. Clinical features that were significantly more frequent among those who died by suicide than among the control subjects included current alcohol use, poor social support, serious physical illness, unemployment, living alone, and having made a suicidal communication. Eighty-three percent of the alcoholics who died by suicide had four or more of the seven risk factors.

Pirkola et al. (154) also examined factors associated with increased likelihood of suicide among alcohol misusers. They found that alcohol misusers who died by suicide (N=349) were more likely to be young, male, and divorced or separated, compared with individuals who did not misuse alcohol in the several months preceding their suicide (N=648). Alcohol misusers were also more likely to be intoxicated with alcohol at the time of death or to have died from an overdose of medications. Those with alcohol misuse had also experienced more adverse life events close to the time of their suicide despite having better psychosocial adjustment earlier in their lifetime. For example, alcoholics who died by suicide had more often worked but were also more likely to be recently unemployed.

A number of studies have identified comorbid disorders as being common among individuals with alcohol use disorders who die by suicide. In a series of 1,312 alcoholics admitted to a Swedish psychiatric hospital between 1949 and 1969 and followed through 1980, Berglund (157) found that alcoholics who died by suicide had a higher rate of depressive and dysphoric symptoms than alcoholics who died of other causes or who were alive at the end of the follow-up period. Murphy et al. (152) also found that concurrent depression was present in most but not all of their sample of alcoholics who died by suicide, suggesting that depression was neither a necessary nor a sufficient precondition for suicide. In a later study, Murphy et al. (149) found that major depressive episodes were significantly more frequent among alcoholics who died by suicide than among alcoholic control subjects and also found that 58% of the alcoholics who died by suicide had comorbid major depression.

Shaffer et al. (159) compared 120 individuals under age 20 who died by suicide to 147 age-, sex-, and ethnicity-matched community control subjects and found that 59% of the subjects who died by suicide and 23% of the control subjects met the DSM-III criteria for a psychiatric

diagnosis based on information obtained from the subject's parents. When information from multiple informants was obtained, 91% of the subjects who died by suicide met the criteria for a DSM-III psychiatric diagnosis. In addition, with increasing age, there was an increased prevalence of a psychiatric diagnosis in general and of a substance and/or alcohol use disorder in particular. Previous suicide attempts and mood disorders were risk factors for suicide in both male and female subjects, whereas substance and/or alcohol abuse occurred exclusively in males and was present in 62% of 18- to 19-year-old subjects who died by suicide.

Even in individuals whose alcohol use disorder has remitted, suicide risk may still be increased but is likely to be influenced by comorbid disorders. Conner et al. (150) analyzed data from a community sample of 141 individuals who died by suicide and found that 39% (N=55) had a history of alcohol misuse. Compared with those who were actively using alcohol, those with remitted alcohol use disorders were predominantly younger individuals with psychotic disorders or older individuals with major depression.

In addition to being associated with an increased risk of suicide, alcohol use disorder is associated with a greater likelihood of suicide attempts. For example, Petronis et al. (163) analyzed data from 13,673 participants in the ECA survey and found that active alcoholism was associated with an 18-fold increase in the relative odds of making a suicide attempt. Gomberg (162) compared 301 women admitted to 21 alcohol treatment facilities to an equal number of age-matched nonalcoholic women from the community. Alcoholic women were far more likely to have attempted suicide (40%, compared with 8.8% of nonalcoholic women), and suicide attempts were particularly likely among alcoholic women under age 40. Alcoholic women who had attempted suicide were more likely to have used other drugs, and they reported significantly more tension, explosiveness, indecisiveness, fearfulness/anxiety, and difficulty concentrating and getting up in the morning.

Among alcoholics, differences also have been noted between those who attempt suicide and those who do not. Roy et al. (165), for example, performed a case-control study to determine the differences between alcoholic suicide attempters and alcoholic nonattempters. Of the 298 alcoholic patients studied, 19% had attempted suicide. Compared with the nonattempters, the attempters were significantly more likely to be female, to be young, and to have a lower economic status. They also were more likely to have first- or second-degree relatives who abused alcohol, to consume a greater amount of alcohol when drinking, and to have begun heavy drinking and experienced the onset of alcohol-related problems at an earlier age.

In addition, comorbid diagnoses are frequently identified among alcoholics who attempt suicide. Roy et al. (165), for example, found the most common comorbid psychiatric diagnoses among alcoholic suicide attempters to be major depression, antisocial personality disorder, substance abuse, panic disorder, and generalized anxiety disorder. Hesselbrock et al. (166), in a sample of 321 inpatients (231 men, 90 women) in alcoholism treatment centers, found that suicide attempters typically had multiple psychiatric diagnoses (e.g., depression, antisocial personality disorder, and substance abuse) and more severe psychiatric symptoms than nonattempters. Two-thirds of alcoholics who attempted suicide had a lifetime diagnosis of major depressive disorder, and most reported symptoms of depression within 2 weeks of the interview. Alcoholic suicide attempters tended to have a parental history of alcoholism, to have begun abusing alcohol at an early age, and to have abused other substances in addition to alcohol.

Preuss et al. (167), using data for 3,190 alcohol-dependent individuals from the Collaborative Study on the Genetics of Alcoholism, found that alcohol-dependent individuals with a history of suicide attempts were more likely to be dependant on other substances and more likely to have other psychiatric disorders. In addition, subjects with suicide attempts had a more severe course of alcohol dependence and more first-degree relatives with suicide attempts. In a subsequent study that followed 1,237 alcohol-dependent subjects over 5 years, Preuss et al. (168) found that the 56 alcohol-dependent subjects with suicide attempts during the follow-up period were more likely to have a diagnosis of a substance-induced psychiatric disorder or be dependent on other

drugs. Furthermore, among 371 alcohol-dependent individuals who had made a suicide attempt and also had had an episode of depression, the 145 individuals (39.1%) with alcohol-independent mood disturbance had a greater number of prior suicide attempts and were more likely to have an independent panic disorder but reported a less severe history of alcohol dependence and were less likely to have been drinking during their most severe attempt (169). These findings suggest that in taking a clinical history in suicide attempters it is useful to identify comorbid depression but also to determine whether depressive episodes are alcohol induced or not.

That the presence of prior attempts is predictive of future attempts also highlights a need for taking a thorough history of past suicidal behaviors. Preuss et al. (168) followed 1,237 alcohol-dependent subjects over 5 years and found that the 56 alcohol-dependent subjects with suicide attempts during the follow-up period were more likely to have made prior attempts than subjects with no suicide attempts. Persons with comorbid major depression and alcohol use have higher rates of suicidal symptoms than those with either alone. Cornelius et al. (170) compared 107 patients with both major depression and alcohol dependence to 497 nondepressed alcoholics and 5,625 nonalcoholic patients with major depression assessed at the same psychiatric facility using a semistructured initial evaluation form. Depressed alcoholics had a significantly greater degree of suicidality, as reflected by a global measure that included wishes for death, suicidal ideation, and suicidal behaviors. They also differed significantly from the nonalcoholic depressed patients in having lower self-esteem and greater impulsivity and functional impairment.

In a subsequent study, Cornelius et al. (171) found that among psychiatrically hospitalized alcoholics with major depression, almost 40% had made a suicide attempt in the week before admission, with 70% having made a suicide attempt at some point in their lifetime. There was a significant association between recent suicidal behavior and recent heavy drinking, with most subjects also reporting drinking more heavily than usual on the day of their suicide attempt. In addition, these suicide attempts were usually impulsive. Suicidal ideation, however, was not increased by more recent heavy alcohol use, suggesting that alcohol increases suicidal attempts by increasing the likelihood of acting on suicidal ideation.

In summary, alcohol use disorders are associated with increased risks of suicide and suicide attempts. Conversely, rates of alcohol use disorders are elevated among those who die by suicide as well as among suicide attempters. The common occurrence of comorbid psychiatric symptoms and diagnoses suggests a need for thorough assessment and treatment of such complicating factors in users of alcohol. Also, the frequent presence of psychosocial stressors including unemployment and interpersonal losses should also be taken into consideration in the assessment and treatment planning process.

g) Other substance use disorders

As with disorders of alcohol use, other substance use disorders may be associated with an increased risk of suicide. Harris and Barraclough (172) noted that the SMRs for suicide varied widely across studies and that calculations were often confounded by the subjects' simultaneous use of multiple substances and by the difficulties in distinguishing accidental overdoses from suicide. Nonetheless, their meta-analysis of published literature found that substance use disorders were associated with a substantial increase in suicide risk. The SMRs for suicide were 14.0 for those with opioid abuse or dependence; 20.3 for those with sedative, hypnotic, or anxiolytic abuse or dependence; and 19.2 for individuals with mixed substance abuse or dependence.

Among individuals with substance use disorders, suicide may be more likely in the presence of comorbid diagnoses such as mood disorders. For example, in a study comparing 67 adolescents who died by suicide to 67 demographically matched community control subjects, Brent et al. (145) found that substance abuse conferred more significant risk when it was comorbid with affective illness than when it was present alone (odds ratio of 17.0 and 3.3, respectively). Lesage et al. (174) compared 75 male subjects ages 18–35 years who died by suicide to a group

of 75 demographically matched living control subjects and found significantly greater rates of DSM-III-R psychoactive substance dependence among the subjects who died by suicide (22.7% versus 2.7%). They also found that comorbid major depression or borderline personality disorder was common among those with substance dependence who died by suicide.

In psychological autopsy studies, diagnoses of substance use disorders are particularly common among individuals under age 30 who die by suicide. For example, Fowler et al. (173) studied a subset of 128 individuals from the San Diego Suicide Study (67) who were under 30 years old and found that 53% had a diagnosis of substance abuse. Of this group, about one-half had an additional psychiatric diagnosis such as atypical depression, atypical psychosis, or adjustment disorder with depression. Despite the young age of the study sample, substance abuse was typically a chronic condition that had been present for an average of 9 years. Abuse of multiple substances was the norm, with marijuana, alcohol, and cocaine being the most frequently abused substances. Other data from the San Diego Suicide Study sample as a whole (110) showed that most substance users abused alcohol as well as other substances, with relatively small numbers of "pure" alcoholics or "pure" substance users. They also noted that interpersonal conflicts or loss occurred more frequently near the time of death for substance abusers with and without depression than for persons with mood disorders alone.

Although the majority of persons with substance use disorders who die by suicide are male, it is important to recognize that men and women with substance use disorders may differ in their characteristics and their risk for suicide. Pirkola et al. (175) used data from a nationwide psychological autopsy study in Finland to study the characteristics of a sample of 172 men and 57 women who died by suicide and had a DSM-III-R diagnosis of psychoactive substance dependence. They found that women were more likely than men to have abused or been dependent on prescribed medication. In addition, women were more likely than men to have a substance use disorder preceded by a comorbid axis I disorder (45% and 18%, respectively). Borderline personality disorder, previous suicide attempts, and suicidal communications were more common in women age 40 years or younger. In addition, alcohol-dependent women died at a younger age than women with nonalcohol substance dependence and also died at a younger age than men with either alcohol dependence or nonalcohol substance dependence.

Available evidence suggests that suicide attempts are common in substance users and that substance use disorders are associated with an increased risk of suicide attempts. Borges et al. (176) used data from the U.S. National Comorbidity Survey, a nationally representative sample of 8,098 persons age 15–54 years that was carried out in 1990–1992, to examine whether retrospectively reported substance use, abuse, and dependence are predictors of the onset of suicidal behavior. After controlling for the effects of sociodemographic factors and comorbid psychiatric disorders, the investigators found that subsequent suicide attempts were predicted by use of alcohol, heroin, or inhalants. Current substance use, rather than a history of use, increased the likelihood of suicidal behavior, with the number of substances used being more important than the types of substances used. In addition, among those with suicidal ideation, current substance use, abuse, and dependence were significant risk factors for unplanned suicide attempts.

Rossow and Lauritzen (178) assessed the self-reported prevalences of nonfatal overdoses and suicide attempts in 2,051 individuals who were being treated for substance abuse. Almost one-half (45.5%) reported having had one or more life-threatening overdoses, and nearly one-third (32.7%) reported one or more suicide attempts. Suicide attempts were more often reported among those who had overdosed, and the number of life-threatening overdoses and number of suicide attempts were positively and moderately associated. Individuals who had exhibited both life-threatening behaviors also showed higher rates of HIV risk-taking behaviors, poor social functioning, and use of multiple substances. Suicide attempters also had more symptoms of depression and anxiety as measured by the Global Assessment Scale. Thus, there is substantial covariation between suicide attempts and drug overdoses in individuals with substance use disorders that is also associated with other risk-taking behaviors and poor social integration.

Individuals with substance use disorders also have an increased likelihood of making a suicide attempt, compared to control subjects. Beautrais et al. (177) compared 302 individuals who had made medically serious suicide attempts to 1,028 control subjects who were randomly selected from local electoral rolls. Overall, those who had made a serious suicide attempt had high rates of substance use disorders (odds ratio=2.6). Furthermore, of those with a serious suicide attempt, 16.2% met the DSM-III-R criteria for cannabis abuse/dependence at the time of the attempt, compared with 1.9% of the control subjects (181). Mann et al. (31), in a study of 347 consecutive admissions to a university psychiatric hospital, found that the 184 patients who had made a prior suicide attempt had a greater likelihood of past substance use disorder or alcoholism. Johnsson and Fridell (179) assessed 125 substance abusers 5 years after hospitalization for detoxification and short-term rehabilitation. Although seven patients were dead at the time of follow-up, none of the deaths were from suicide. Of 92 interviewed subjects, nearly one-half the group (45%) reported having attempted suicide at some point in their lives, with about 50% of that group having attempted suicide with prescribed psychotropic drugs such as antidepressants or sedatives. Only a few of the suicide attempts were made by using the individual's primary substance of abuse. The most common reasons given for suicide attempts were the loss of a person whom they loved and feelings of loneliness. Compared to those who had never made a suicide attempt, the suicide attempters were more likely to have had childhood psychiatric hospitalizations or experienced loss of significant others in childhood. They also were more likely to experience depressive moods or other psychiatric comorbidity.

The combination of cocaine use plus alcohol use also appears to increase the risk of suicide attempts. Cornelius et al. (711) found that of 41 consecutively admitted depressed alcoholic inpatients, 16 had made a suicide attempt and 10 had used cocaine during the week before their hospitalization. The proportion of patients making a suicide attempt in the week before admission was greater in those who had used cocaine than in those who had not (70% and 32%, respectively). Suicidal ideation was also more prevalent in the depressed alcoholics who also used cocaine. Roy (180) studied the characteristics of cocaine-dependent patients in a substance abuse treatment center and compared the 130 individuals who had never attempted suicide with the 84 individuals who had made prior suicide attempts (a mean of 2.1 prior attempts). Compared with nonattempters, attempters were more likely to be female and to have a lifetime history of alcohol dependence (58.3%, compared with 34.6% for nonattempters) and a family history of suicidal behavior (25%, compared with 5.4% for nonattempters). Attempters also had significantly higher childhood trauma scores for emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect than the nonattempters; however, these scores were not corrected for the differences in the gender ratios in the two groups. Thus, suicide attempts are common among individuals seeking treatment for cocaine dependence, and factors that seem to augment risk are similar to those for other groups of suicide attempters.

In summary, studies indicate that substance use is a significant risk factor for suicide attempts and suicide. This is particularly true in younger individuals, leading some researchers to hypothesize that increasing suicide rates among youths may be related to increasing rates of substance use. Individuals with chronic substance use disorders, those who have experienced life-threatening nonsuicidal overdoses, and those who abuse multiple substances, including alcohol, may be at even greater risk. Moreover, substance use disorders may complicate mood disorders (182), increasing susceptibility to treatment-resistant illness and psychological impairment, and on that basis may contribute to an elevated risk for suicide and for suicide attempts. As a result, it is important to evaluate individuals with suicidality in the context of substance use for the presence of comorbid mood disorders as well as other comorbid psychiatric diagnoses. The evaluation should also be aimed toward identifying patterns of recent substance use and psychosocial factors such as recent interpersonal loss or history of childhood trauma that may also affect the likelihood of suicidal behaviors among substance users.

h) Personality disorders

Although personality disorders are often comorbid with substance use disorders and with other psychiatric diagnoses, they also appear to confer an independent risk for suicide. In addition, among individuals with personality disorders, the rate of suicide may be equivalent to rates in individuals with other major psychiatric syndromes. For example, in a meta-analysis of 14 case-control samples and nine longitudinal samples of patients with personality disorders, Linehan et al. (184) found rates of suicide that were between 4% and 8%. For patients with borderline personality disorder, studies have shown suicide rates ranging from 3% to 9% (183). Harris and Barraclough (64) also found suicide risk to be increased, calculating an SMR for suicide of 7.08 among individuals with personality disorder. However, the majority of patients included in their analysis were male and from a Veterans Administration study, raising questions about the representativeness of the population. Baxter and Appleby (188), in a large case registry study of long-term suicide risk in the United Kingdom, found even higher risks for suicide among individuals with personality disorder diagnoses, with a 12.8-fold elevation of risk in men and a 20.9-fold elevation of risk in women with personality disorders.

In a longitudinal follow-up study of individuals with personality disorders, Stone et al. (185) found that 18 of the 196 patients who were able to be located had died by suicide by 16.5 years. Compared to a suicide rate of 8.5% for the borderline personality group as a whole, those with alcohol problems had a twofold increase in the rate (19%), with a 38% rate of suicide among women who had a combination of alcoholism, major affective disorder, and borderline personality disorder. Other factors that appeared to contribute to suicide in individuals with borderline personality disorder were continuing alcohol abuse, impulsivity, and a history of parental brutality, specifically sexual molestation.

Psychological autopsy studies also show significant rates of personality disorder diagnoses among individuals who die by suicide. Duberstein and Conwell (186) reviewed case-based and cohort studies on suicide in individuals with personality disorders and found that approximately 30%–40% of suicides occur in individuals with personality disorders, with increased risk conferred by the presence of borderline, antisocial, and possibly avoidant and schizoid personality disorder diagnoses.

In a random sample of all persons who died by suicide in Finland within a 1-year period, Isometsa et al. (187) found that 29% of the subjects (N=67) had an axis II disorder. All individuals with a personality disorder also had at least one axis I diagnosis, which in 95% included a depressive syndrome, a substance use disorder, or both. Individuals with cluster B personality disorders were more likely to have substance use disorders and to have had a previous suicide attempt and were less likely to have had a health care contact during their final 3 months of life. In the same group of subjects, Heikkinen et al. (190) examined data on recent life events for 56 subjects with personality disorder who died by suicide and matched those subjects to control subjects who did not have a personality disorder diagnosis. Those with a personality disorder were more likely to have experienced one or more stressful life events in the last 3 months of life as well as in the week preceding the suicide. Specifically, of those with a personality disorder, 70% had a significant event in the week before suicide, with job problems, family discord, unemployment, and financial difficulty reported most commonly. Thus, these findings suggest that individuals with personality disorders who die from suicide have high rates of comorbid depression and substance use as well as high rates of significant life stressors that precede suicide.

The increased risk of suicide with personality disorders seems to be a particular factor that contributes to risk in young adults. Lesage et al. (174) compared 75 young men who died by suicide to a demographically matched group of men in the community and found that the 6-month prevalence of borderline personality disorder was substantially increased among those who died by suicide (28.0% versus 4.0%). In a study of adolescents and young adults who had been admitted to a regional poisoning treatment center because of deliberate self-poisoning or self-injury, Hawton et al. (384) compared 62 individuals who died by suicide or possible sui-

cide to 124 matched control subjects and found that an increased risk of death was associated with the presence of a personality disorder (odds ratio=2.1).

Suicide attempts may also be more likely to occur in individuals with personality disorders than in those with other diagnoses. In a review of the topic, Linehan et al. (184) noted that suicide attempts are estimated to occur in 40%–90% of individuals with personality disorders. Soloff et al. (193) examined data for 84 patients who met the DSM-III-R criteria for borderline personality disorder and found that 61 patients (72.6%) had a lifetime history of suicide attempts, with an average of more than three attempts per patient. Risk factors for suicide attempts in patients with borderline personality disorder included older age, prior suicide attempts, antisocial personality, impulsive actions, and a depressed mood, but not comorbid mood disorder or substance use disorder. Ahrens and Haug (194), in a case-control study of 226 patients with a personality disorder who were admitted to a psychiatric hospital, found that patients with a personality disorder (including, but not limited to, borderline personality disorder) were more likely than other hospitalized patients to have had a suicide attempt immediately before admission, with persistent clinically relevant suicidal behavior within the first 24 hours after admission (39% versus 24%). Furthermore, in patients with a personality disorder, suicidality was not related to the presence of a specific mood disorder, since only 3% of the patients with personality disorder met the criteria for a major affective syndrome. However, the rates of reported suicide attempts in individuals with personality disorder diagnoses varied with the treatment setting. Pirkis et al. (198), in a study of suicide attempts by psychiatric patients under active treatment, observed a rate of suicide attempts in acute inpatients that was 10-fold greater than those for individuals in community-based and for individuals in long-stay inpatient care (22.7 attempts per 1,000 episode-days, compared with 2.3 and 2.1 attempts per 1,000 episode-days, respectively).

Conversely, among individuals who attempt suicide, personality disorders are commonly observed. Mann et al. (31), in a study of 347 consecutive patients who were admitted to a university psychiatric hospital, found that comorbid borderline personality disorder was more common among the 184 patients who had attempted suicide than among those with no prior suicide attempts. Beautrais et al. (177) compared 302 consecutive individuals who made serious suicide attempts with 1,028 randomly selected comparison subjects. Multiple logistic regression showed that those who made suicide attempts had a high rate of conduct disorder or antisocial personality disorder (odds ratio=3.7, 95% confidence interval=2.1–6.5). Thus, both borderline personality disorder and antisocial personality disorder appear to occur more frequently among suicide attempters. In a study of consecutive patients who had attempted suicide, Suominen et al. (191) compared 65 patients who did not have a personality disorder diagnosis to 46 patients who received a diagnosis of personality disorder. Of those with a diagnosis, 74% had a cluster B personality disorder and 46% had a diagnosis of borderline personality disorder. Individuals with a personality disorder were more likely to have attempted suicide in the past (78%, compared to 57% of those without a personality disorder diagnosis) and were more likely to have had psychiatric treatment in their lifetime (85% versus 57%); however, those with and without personality disorders did not differ in their degree of intent, hopelessness, somatic severity, or impulsiveness. Personality disorders were associated with a high degree of comorbidity, with comorbid alcohol dependence being particularly common and associated with greater difficulty in pursuing follow-up.

A number of additional factors may act as contributors to risk for suicide attempts among individuals with personality disorders. Brodsky et al. (196) analyzed data for 214 inpatients with a diagnosis of borderline personality disorder according to a structured clinical interview and examined the relationship between the specific DSM-IV criteria for borderline personality disorder and measures of suicidal behavior. After excluding self-destructive behavior and controlling for the effects of lifetime diagnoses of depressive disorder and substance abuse, they found that impulsivity was the only characteristic of borderline personality disorder that was

associated with a higher number of suicide attempts. In addition, the number of previous suicide attempts was associated with having a history of substance abuse.

Comorbid mood disorders are also common among suicide attempters with personality disorder diagnoses. For example, Van Gastel et al. (192), in a study of 338 depressed psychiatric inpatients, found significantly more suicide attempts and more suicidal ideation among those with a comorbid personality disorder diagnosis than among depressed inpatients without a personality disorder. In addition, Oquendo et al. (131) found that among 156 inpatients with a diagnosis of a major depressive episode, having a history of suicide attempts was independently related to the presence of a cluster B personality disorder and to PTSD.

Corbitt et al. (195) also examined the effects of comorbid borderline personality disorder in 102 individuals with mood disorders and found that the 30 patients with major depressive disorder and comorbid borderline personality disorder were just as likely to have made a highly lethal suicide attempt as the 72 patients with major depressive disorder alone. However, those with comorbid borderline personality disorder were more likely to have a history of multiple serious suicide attempts, and past suicidal behavior was better predicted by the number of personality disorder symptoms than by the number of depressive symptoms. Thus, they suggested that the severity as well as the presence of comorbid cluster B personality disorder symptoms should be ascertained in assessing the risk of suicide attempts in patients with major depressive disorder.

Soloff et al. (197) compared the characteristics of suicide attempts in 77 inpatients with major depressive episodes to suicide attempts in 81 patients with borderline personality disorder, 49 of whom had a concomitant major depressive episode. Compared to patients with borderline personality disorder alone, all of the depressed patients had more severe observer-rated depression and lower levels of functioning. Patients with borderline personality disorder had higher rates of impulsivity, regardless of whether depression was also present. However, the diagnostic groups did not differ in their subjective intent to die, their degree of objective planning for death, the violence of the suicide method, or the degree of physical damage in the attempt as measured by the Beck Suicide Intent Scale.

In summary, individuals with personality disorders, and particularly those with a diagnosis of borderline personality disorder or antisocial personality disorder, have increased risks for suicide and for suicide attempts. These risks appear to be further augmented by the presence of comorbid disorders such as major depression, PTSD, and substance use disorders. The severity of symptoms such as impulsivity may also play a role in increasing risk, suggesting that such factors should be identified and addressed in the assessment and treatment of individuals with personality disorders.

3. Specific psychiatric symptoms

a) Anxiety

Anxiety has been suggested to increase the risk of suicide even when a specific anxiety disorder is not present. In a review of 46 cohort or case-control studies that used standardized or structured assessments of psychological dimensions to assess psychological vulnerability to suicide, Conner et al. (217) noted anxiety to be one of five constructs that is consistently associated with suicide. Busch et al. (218) reviewed the charts of 76 patients who died by suicide while in the hospital or immediately after discharge and found that 79% (N=60) met the criteria for severe or extreme anxiety and/or agitation according to Schedule for Affective Disorders and Schizophrenia ratings. In addition, Fawcett et al. (79), in a study of 954 psychiatric patients with major affective disorders, found that panic attacks and severe psychic anxiety were factors associated with suicide within 1 year of index evaluation. In these studies, the anxiety levels associated with suicide often took the form of anxious ruminations, panic attacks, or agitation and were in the severe range (i.e., severe anxiety most of the time).

With respect to the effect of anxiety on the risk of suicide attempts, the findings are more mixed. For example, Hall et al. (212) studied the characteristics of 100 patients who made a severe suicide attempt and found that severe anxiety and panic attacks were among the factors that were associated with the attempt. However, Placidi et al. (220), in a study of 272 inpatients with at least one major depressive episode, found that agitation and psychic anxiety were more severe in those who had not reported making a past suicide attempt.

Thus, although the relationship between anxiety and suicide attempts is unclear, and specific measures of anxiety have not been found to be predictive of suicide (78), severe anxiety does seem to increase suicide risk at least in some subgroups of patients. In particular, psychic anxiety, which may not be obvious to the clinician, should be specifically assessed, since such symptoms can respond rapidly to aggressive short-term treatment with benzodiazepines, second-generation antipsychotic medications, and possibly anticonvulsant medications (109).

b) Hopelessness

Hopelessness has been consistently identified as a factor associated with an increased risk of suicide, independent of diagnosis (217). Many studies that have assessed hopelessness have used the Beck Hopelessness Scale (712), which is described further in Section VI.B.1, "Rating Scales." For example, Beck et al. (222) followed 207 patients who were hospitalized for suicidal ideation but who had not made a recent suicide attempt to identify predictors of later suicide. After a follow-up period of 5–10 years, 14 individuals (6.9%) had died by suicide. Although a score of 10 or more on the Beck Hopelessness Scale correctly identified 91% of the patients who eventually died by suicide, there was significant overidentification of at-risk patients, with a false positive rate of 88%. The group who died by suicide also had a higher mean score on clinicians' ratings of hopelessness (223).

A later longitudinal study that included 1,958 consecutive psychiatric outpatients examined whether the level of hopelessness at intake could predict eventual suicide (221). In this patient population, those with a suicide death scored significantly higher on both the Beck Hopelessness Scale and the Beck Depression Inventory. Although a Beck Hopelessness Scale score of 10 or more was associated with an 11-fold increase in the likelihood of suicide, the specificity was again low. Since a high level of hopelessness is common in psychiatric patients, applying this Beck Hopelessness Scale cutoff to a larger population would identify 100 patients as being at risk for every one or two eventual suicides (713).

In a subsequent study that included an expanded sample of 6,891 psychiatric outpatients seen between 1975 and 1995 and followed for up to 20 years (with a median length of follow-up of 10 years), Brown et al. (78) used survival analysis to identify factors associated with increased risk for suicide. Along with higher levels of suicidal ideation and depression, hopelessness was identified as a risk factor for suicide, with patients who scored above 8 on the Beck Hopelessness Scale being at four times greater risk for suicide in a given year than those with lower scores.

The effect of hopelessness on suicide risk may vary by diagnosis, however. Fawcett et al. (79), in a longitudinal follow-up study of 954 patients with major affective disorder, found that severe hopelessness was one of several factors associated with an increased risk of suicide more than 1 year after the index assessment. However, among subjects who met the criteria for alcohol or substance abuse at any time, those who were not pervasively hopeless had the highest suicide risk at 5-year follow-up (226). This pattern is consistent with the findings of Beck et al. (227), who followed 161 alcohol-abusing patients for 7–12 years after they were hospitalized for a suicide attempt. Comparison of the 18 individuals who died by suicide to the remainder of the group failed to show a relationship between suicide and either hopelessness or depression.

Hopelessness at the termination of treatment may also reflect an increased risk for suicide. Dahlsgaard et al. (236) compared 17 cognitive therapy outpatients with mood disorder who died by suicide with a matching group of 17 outpatients who did not. Although the sample was

small, those who died by suicide had higher levels of hopelessness at the end of treatment and were more likely to have ended treatment prematurely.

In addition to being a risk factor for suicide, hopelessness is more prominent in individuals who have reported previous suicide attempts, compared to individuals without such a history. Cohen et al. (229), for example, found greater levels of hopelessness in the 43 suicide attempters among 184 individuals with a first admission for psychosis. Hall et al. (212), in a study of 100 patients who had made severe suicide attempts, also noted feelings of hopelessness to be associated with suicidal behavior. Among 84 inpatients with DSM-III-R major depression, Malone et al. (230) found that the 45 individuals who had made a suicide attempt had higher subjective ratings of hopelessness and depression severity and that these ratings were inversely correlated with "reasons for living." In a study comparing 148 low-income African American women who had made a suicide attempt to 137 demographically similar women who presented for general medical care, Kaslow et al. (230) found hopelessness to be associated with a nearly eightfold increase in the risk of a suicide attempt in a univariate analysis. In a multivariate logistic regression analysis, hopelessness was independently associated with an increased risk of suicidal behaviors. Van Gastel et al. (192) also found that hopelessness was associated with suicidal ideation among 338 depressed inpatients and that the presence of a comorbid personality disorder was associated with additional increases in suicidal ideation and suicide attempts.

Across diagnostic groups, hopelessness appears to relate to the seriousness of suicidal ideation and intent. Soloff et al. (197) assessed the relationship of hopelessness to suicide attempts in inpatients with major depressive disorder (N=77) as well as in inpatients with borderline personality disorder alone (N=32) or in combination with major depressive disorder (N=49). Across groups, increased hopelessness was associated with an increased number of suicide attempts as well as an increase in the lethal intent associated with attempts. In addition, in patients with both disorders, higher levels of hopelessness were associated with objective planning of suicide attempts, which would further enhance risk. In a sample of 384 individuals who had attempted suicide, Weissman et al. (233) found that hopelessness contributed to the severity of suicidal intent in those with substance use disorders (N=86) as well as in those without substance use disorders (N=298).

Other evidence suggests that the level of hopelessness cannot be considered independently of other factors. For example, Uncapher et al. (228) analyzed data for 60 institutionalized elderly men and found that the relationship between hopelessness and suicidal ideation varied with the level of depressive symptoms and was most pronounced at moderate or higher levels of depression. Mendonca and Holden (232) assessed 97 outpatients and found the strongest predictors of the seriousness of current suicidal inclinations (as measured by the Beck Scale of Suicidal Ideation) to be hopelessness (as measured by the Beck Hopelessness Scale) and "unusual thinking" (defined as a state of cognitive distress with confused, disorganized thinking, including "trouble concentrating" and "mind going blank").

Furthermore, cross-sectional assessments of hopelessness may not necessarily be as relevant to risk as the level of hopelessness at baseline when the individual is not depressed. Young et al. (234), in a longitudinal study of 316 individuals, found that the baseline level of hopelessness was a better predictor of suicide attempts than either the level of hopelessness when depressed or the relative change in hopelessness from baseline levels during depression.

In summary, hopelessness is well established as a psychological dimension that is associated with an increased risk for suicide and suicide attempts and an increased level of suicidal intent. This relationship between hopelessness and suicidality holds true across diagnostic groups, with the possible exception of individuals with alcohol use disorder. These findings suggest the importance of inquiring about current levels of hopelessness as well as inquiring about usual levels of optimism about life and plans for the future. They also suggest the use of interventions to reduce hopelessness as a part of treatment.

c) Command hallucinations

Although command hallucinations have been regarded clinically as being associated with increased suicide risk, there is limited evidence that addresses this question. In addition, those studies that are available have included relatively small numbers of patients, making it difficult to detect differences in rates of suicide or suicide attempts between patient groups. Furthermore, in psychological autopsy studies, it is impossible to determine whether command hallucinations were present immediately before death or may have contributed to suicide.

Two small studies have noted whether command hallucinations had been present on index assessment in individuals who later died by suicide. Breier and Astrachan (102) described 20 schizophrenia patients who died from suicide and found that none had previously reported hallucinated suicidal commands. In contrast, Zisook et al. (239) found that command hallucinations, which were often violent in content, had been reported by 46 of 106 outpatients with schizophrenia, including the two patients who died by suicide during the study.

Other studies have tried to determine the rates at which patients follow command hallucinations and the factors that contribute to following or resisting such commands. For example, Junginger (241) used a semistructured psychiatric interview and hospital chart review to obtain information on 51 psychiatric inpatients and outpatients, all of whom had experienced recent command hallucinations. Of these subjects, 39.2% reported that they had followed the commands, 47.1% reported that they did not follow the commands, and 13.7% were unable to recall their response. Patients with hallucination-related delusions and identifiable hallucinatory voices were more likely to follow the commands than patients who were unable to identify the voices that they heard. In a subsequent study of 93 psychiatric inpatients who had a history of at least one command hallucination, the most recent command hallucination reported by the subject was rated for level of dangerousness and level of compliance with the command (242). Of the 93 subjects, 52 (56%) reported at least partial compliance with their most recent command hallucination, and 40 (43%) reported full compliance. Individuals who experienced less dangerous commands or who could identify the hallucinated voice reported higher levels of compliance, although reported compliance with more dangerous commands was not uncommon. Commands experienced in the hospital were less dangerous than those experienced elsewhere, tended to be specific to the hospital environment, and were less likely to be followed. Based on these self-reports, the authors concluded that psychiatric patients who experience command hallucinations are at risk for dangerous behavior and that a patient's ability to identify the hallucinated voice is a fairly reliable predictor of subsequent compliance. Also, the level of dangerousness that results from compliance with command hallucinations may be a function of the patient's environment.

Erkwoh et al. (245) used a 24-item questionnaire to assess the psychopathological characteristics of command hallucinations in 31 patients with schizophrenia. Like Junginger, they found that following the commands was predicted by recognizing the voice. In addition, patients were more likely to comply with commands from hallucinations that they viewed as "real" and that produced an emotional response during the hallucination.

Kasper et al. (243) compared 27 psychotic patients with command hallucinations to 27 patients with other hallucinations and 30 patients with other psychotic symptoms. Although the groups did not differ in aggressive or violent behavior or in most nonhallucinatory symptoms, 84% of the patients with command hallucinations had recently obeyed them, even during their hospital stays. Among those with command hallucinations, almost one-half had heard and attempted to obey messages of self-harm during the previous month. Rogers et al. (244), in a study of 65 forensic inpatients with psychotic disorders, also found that a significant number of individuals (44%) often responded to command hallucinations with unquestioning obedience.

These findings, that significant numbers of individuals comply with at least some hallucinated commands, are in contrast with the findings of Hellerstein et al. (240). Among 789 consecutive inpatients admitted over a 2-year period, they found that 19.1% had auditory hal-

lucinations within 2 weeks of hospital admission, and, of these, 38.4% heard commands to behave violently or self-destructively. It is not surprising that hallucinations were more common in the 159 patients with schizophrenia, with 50.3% experiencing auditory hallucinations and 18.2% experiencing command hallucinations. Among 167 patients with affective disorder, rates of auditory and command hallucinations were 13.2% and 4.2%, respectively. The presence of auditory hallucinations was significantly associated with use of maximal observation and seclusion. However, patients with command hallucinations were not significantly different from patients without command hallucinations on demographic and behavioral variables, including suicidal ideation or behavior and assaultiveness. This finding suggests that command hallucinations alone may not imply a greater risk for acute, life-threatening behavior. In addition, consistent with the findings of Goodwin et al. (714), these findings imply that many patients are able to ignore or resist command hallucinations.

The most specific assessment of the role of command hallucinations in suicidal behaviors is that of Harkavy-Friedman et al. (106). They interviewed 100 individuals with schizophrenia or schizoaffective disorder who were hospitalized on an inpatient research unit about their experiences with command auditory hallucinations as well as about suicide attempts. Suicide attempts were reported by 33% of the sample, and the relative frequency of individuals with command hallucinations did not statistically differ between those who had and those who had not reported a suicide attempt (30% and 18%, respectively). Command hallucinations were present in 22% of the sample as a whole, and, of these, 45% had made at least one suicide attempt. Among individuals with command hallucinations who had made a suicide attempt, however, 80% had at least one attempt in response to the hallucinations. Thus, these findings suggest that for some individuals, particularly those with prior suicide attempts, suicidal behavior may occur in the context of auditory command hallucinations.

In summary, study findings are inconsistent about whether patients with command hallucinations are likely to obey them. Patients who recognize the hallucinated voices or view them as real or benevolent may be more likely to follow their directives. In addition, patients with prior suicide attempts may be more likely to follow suicidal commands. In terms of suicide risk, per se, patients with command hallucinations may not be at greater risk than other severely psychotic patients. However, existing studies include too few subjects to draw strong conclusions. In addition, since some patients do seem to act in response to auditory command hallucinations, it is important to identify such hallucinations, assess them in the context of other clinical features, and address them as part of the treatment planning process.

d) Impulsiveness and aggression

Factors such as impulsivity, hostility, and aggression may act individually or together to increase suicide risk. For example, many studies have provided moderately strong evidence for the roles of impulsivity and hostility-related affects and behavior in suicide (217, 246). In particular, impulsivity and aggression have been shown to be associated with suicide in patients with schizophrenia as well as in those with mood disorder. For example, De Hert et al. (89) compared 63 patients who died by suicide and 63 control subjects from a consecutive admission series of patients with a diagnosis of schizophrenia, all of whom were under age 30 on admission. In this sample, impulsive acting-out behavior was associated with an increased likelihood of suicide (odds ratio=6.4). Among 529 patients with affective illness who were followed naturalistically for up to 14 years and who either attempted suicide or died by suicide, Maser et al. (247) also found that impulsivity was a core characteristic of patients with suicidal behaviors. In fact, beyond 12 months, higher levels of impulsivity and assertiveness were the best prospective predictors of suicide.

Angst and Clayton (248) found a significant effect of premorbid aggression on the risk of suicide attempts or suicide. To assess the effect of personality traits on suicidal behaviors, they administered the Freiberg Personality Inventory to 6,315 Swiss army conscripts. Twelve years later, 185 of these individuals were identified as receiving psychiatric treatment during that

time period, and a record review was conducted to establish a blind diagnosis and assess measures of suicidality and mortality in a subgroup of 87 of those individuals. Those who made suicide attempts or died by suicide were found to have scored higher on aggression than control subjects. In contrast, subjects with suicidal ideation alone scored lower on aggression, suggesting a role for premorbid aggression in suicidal behaviors.

Multiple other studies have demonstrated increased levels of impulsivity and aggression in individuals with a history of attempted suicide. For example, Mann et al. (31), in a study of 347 consecutive patients admitted to a university psychiatric hospital, found that rates of lifetime aggression and impulsivity were greater in the 184 patients who had attempted suicide than in those without a history of suicide attempts. Hall et al. (212) found that the recent onset of impulsive behavior was an excellent predictor of suicidal behavior in 100 patients who had made a severe suicide attempt. Kotler et al. (249) compared 46 patients with PTSD to 42 non-PTSD anxiety disorder patients and 50 healthy control subjects and found that impulsivity was positively correlated with the risk of suicidal behavior in the PTSD group.

Impulsivity and aggression have also been associated with suicide attempts among patients with mood disorders. Brodsky et al. (250), in a study of 136 depressed adult inpatients, found that individuals with at least one prior suicide attempt had significantly higher scores on measures of impulsivity and aggression than individuals without reported suicide attempts. Placidi et al. (220) analyzed data for 272 inpatients with at least one major depressive episode and found significant increases in measures of aggression and impulsivity in those with a history of suicide attempts, compared to those without suicide attempts. Finally, in a study of 44 individuals with a DSM-III-R diagnosis of bipolar disorder, Oquendo et al. (252) found that suicide attempters were more likely to have more lifetime aggression than nonattempters, although lifetime rates of impulsivity were not increased among those with a prior suicide attempt.

Suicide attempters with borderline personality disorder similarly have been reported to exhibit increased levels of aggression and impulsivity. Soloff et al. (197) compared 32 inpatients with borderline personality disorder alone and 77 inpatients with major depressive episode alone to 49 patients with both diagnoses and found that a greater number of suicide attempts was associated with a diagnosis of borderline personality disorder or with increases in either hopelessness or impulsive aggression. Soloff et al. (193) studied the characteristics of 84 patients with borderline personality disorder, of whom 61 had a lifetime history of suicide attempts (72.6%), with an average of 3.39 (SD=2.87) attempts per patient. Those with a history of suicide attempts were found to have had more impulsive actions than patients who had never attempted suicide.

Many individuals with borderline personality disorder and other cluster B personality disorders have a history of suicide attempts, but they may also have a history of self-mutilatory behaviors. However, it is important to recognize that these three characteristics define overlapping but not identical groups of individuals. Stanley et al. (251) compared 30 suicide attempters with a cluster B personality disorder and a history of self-mutilation to a matched group of 23 suicide attempters with a cluster B personality disorder but no history of self-mutilation. Individuals with a history of self-mutilation had higher levels of impulsivity and aggression than those without such a history. Herpertz et al. (253) examined characteristics of self-mutilatory behaviors and found that an ongoing tendency for behavioral dyscontrol was present only in patients exhibiting impulsive self-mutilatory behaviors and not in those with premeditated self-mutilatory behaviors. Thus, although self-mutilatory behaviors and impulsivity share many associated features and antecedents and are common among individuals with borderline personality disorder or histories of physical or sexual abuse, self-mutilatory behavior cannot be regarded as synonymous with impulsivity. In a similar fashion, the presence of other risk-taking behaviors such as reckless driving or unsafe sexual practices is not necessarily a reflection of increased impulsivity per se. Nonetheless, the presence of impulsivity, violence, risk-taking, or self-mutilatory behaviors requires a careful assessment and plan of treatment to address these clinical characteristics and minimize their effect on the risk of suicide and suicide attempts.

4. Other aspects of psychiatric history

a) Alcohol intoxication

Intoxication with alcohol and/or with other substances is often found in individuals who have died by suicide, independent of whether they meet the diagnostic criteria for a substance use disorder. Hayward et al. (255) reviewed coroners' records for 515 consecutive suicides in Western Australia and found that 35.8% of the persons who died by suicide had a nonzero blood alcohol level, with 24.5% being moderately to significantly impaired by alcohol at the time of death. Alcohol consumption before suicide was more prevalent in younger individuals, with 44.8% of teenagers and 35.1% of those age 20–24 years having used alcohol, in contrast to 25.9% of individuals over age 45 years. In addition, those with nonzero blood alcohol levels were more likely to have experienced a breakup in a relationship but less likely to have a history of psychiatric illness or treatment.

As part of the National Suicide Prevention Project in Finland (1987–1988), Ohberg et al. (121) conducted toxicological screening in 1,348 consecutive suicides in a 1-year period and found alcohol use before suicide in 35.9% of the sample. Alcohol was present in men twice as often as in women, whereas prescribed medications, which were found on toxicological screening in 41.6% of suicides overall, were more commonly noted in women.

Brent et al. (151), in a study of suicides in 10- to 19-year-old residents of Allegheny County, Pennsylvania, from 1960 to 1983, found that the proportion of persons who died by suicide with detectable blood alcohol levels rose from 12.9% in 1968–1972 to 46.0% in 1978–1983. In addition, individuals who used a firearm for suicide were 4.9 times more likely to have been drinking than individuals who used other suicide methods.

That intoxication increases the likelihood of suicide is also suggested by the role of employment in modulating suicide risk among alcohol users. Specifically, Pirkola et al. (260) found that alcohol misusers who were employed were more likely to have died by suicide on a weekend than those who were unemployed, suggesting that alcohol use per se contributes to risk, perhaps by increasing impulsivity.

Alcohol intoxication is also a common concomitant of suicide attempts. Borges et al. (715) assessed measures of alcohol intoxication in 40 emergency department patients who had attempted suicide and compared them to 372 patients who presented to the emergency department because of animal bites or workplace or recreational accidents. Patients with suicide attempts were significantly more likely to be under the influence of alcohol, as measured by breath alcohol testing or by self-report of alcohol consumption in the preceding 6 hours. In a study of 325 individuals with deliberate self-poisoning who presented to a Brisbane hospital over a 12-month period, McGrath (453) found that almost one-third had consumed alcohol before their suicide attempt. Varadaraj and Mendonca (454) found similar rates of intoxication in a study of 158 emergency department patients who had attempted suicide by overdose, with 41% consuming alcohol prior to the attempt and 29% having serum alcohol levels above 80 mg/dl.

Individuals who have made a suicide attempt while intoxicated are also at increased risk of later suicide. A study by Suokas and Lonnqvist (258) included data for 1,018 individuals who made a total of 1,207 suicide attempts and were evaluated in the emergency department of a Helsinki, Finland, hospital in a single year. Of these patients, 62% had recently consumed alcohol. Suicide attempts that occurred while intoxicated were more likely to be impulsive. After 5.5 years of follow-up, suicide had occurred in 3.3% of those who had used alcohol with their index suicide attempt. The majority of deaths occurred within the initial year of follow-up, yielding a 51-fold increase in risk of suicide, compared to the general population in the initial year, and a 17-fold increase in risk for the follow-up period as a whole. These findings suggest a need for careful follow-up of intoxicated individuals who present with a suicide attempt. In addition, they suggest a need to determine whether prior suicide attempts occurred in the context of intoxication.

b) Past suicide attempts

A substantial percentage of individuals will die on their initial attempt at suicide. For example, Isometsa and Lonnqvist (266) found that 56% of the 1,397 individuals in the Finnish psychological autopsy study had died with their first suicide attempt and that this pattern was particularly evident in males (62%, compared with 38% of females). In addition, however, individuals with nonfatal suicide attempts have an increased likelihood of later suicide. From a public health standpoint, this finding is particularly important, given the high occurrence of attempted suicide, which in recent decades has had annual rates ranging from 2.6 to 1,100 per 100,000, with lifetime prevalence rates ranging from 720 to 5,930 per 100,000 (2, 518).

Multiple studies have indicated that suicide attempts increase the risk of subsequent suicide. In fact, depending on the length of the follow-up period, from 6% to 10% of those who attempt suicide will ultimately die by suicide. For example, in follow-up studies of patients seen in psychiatric emergency settings after a suicide attempt, 4%–12% die by suicide within 5 years (268, 269, 275). In a 14-year follow-up of 1,018 deliberate self-poisoning patients, Suokas et al. (271) found a 6.7% rate of suicide overall, with the rate in men approximately twice that in women. Among 1,573 individuals who had been hospitalized after attempted suicide and followed up 4–11 years later, Nordstrom et al. (275) found an overall mortality of 11%, with a suicide risk of 6%. Tejedor et al. (272), in a 10-year follow-up of 150 patients admitted to a psychiatric department after a suicide attempt, found an even higher mortality rate from suicide (12%) as well as from natural causes (10%). Furthermore, in a meta-analysis of literature on psychiatric disorders and suicide, Harris and Barraclough (64) found that attempted suicide had a relative risk of later suicide that was greater than that of any psychiatric disorder. Compared to the general population, patients who attempted suicide were at 38 times greater risk of suicide, with the majority of evidence suggesting that this increase in suicide risk is related to the recency of the suicide attempt. This effect has also been noted by Nordstrom et al. (275), who found the greatest risk for suicide during the first year after an attempt. In addition, among the 1,397 individuals in the Finnish psychological autopsy study, Isometsa et al. (266) found that a nonfatal suicide attempt had occurred in 19% of the males and 39% of the females in the year preceding their suicide. In contrast, Fawcett et al. (79) found that among patients with a major affective disorder, a history of previous suicide attempts was associated with suicide that occurred more than 1 year after index hospital admission.

Other factors may also modulate suicide risk following a suicide attempt. Harris and Barraclough (64) found that risk for suicide after an attempt varied with measures of social cohesion and was increased by the presence of long-standing physical illness or a history of multiple previous attempts or prior psychiatric treatment. Risk of suicide following a suicide attempt may also vary with gender, since Nordstrom et al. (275) found a twofold increase in suicide risk in males, compared with females, with the risk for younger male attempters being four times that for younger females.

Other investigators have examined factors associated with subsequent suicide attempts following an index suicide attempt. Hjelmeland (164), for example, studied 1,220 patients who had attempted suicide and compared those who had a repeated attempt within 12 months to those who did not. Although there were no gender differences between repeaters and nonrepeaters, repeaters were more likely to be unmarried, to be unemployed, to abuse alcohol, and to report their own psychiatric problems as their main concern. Repeaters were also more likely to have had a history of sexual abuse, a criminal record, a recent address change, or a relative or friend who had attempted suicide. Others have confirmed an increased risk of repeated suicide attempts in individuals with multiple prior attempts (272, 278). Aborted suicide attempts are also common among those who attempt suicide (276).

Given this increased likelihood of suicide or additional suicide attempts, particularly in the first few years after a suicide attempt, assessment and treatment of suicide attempters should be an integral part of risk reduction. All too often, however, suicide attempters do not receive a

psychiatric assessment or follow-up care (2, 279, 280). Thus, in addition to a thorough psychiatric assessment, determining a patient's history of suicide attempts (including aborted suicide attempts) yields information that is important in estimating the level of suicide risk of an individual patient. Additional factors such as psychiatric diagnosis, comorbid alcohol abuse, physical illness, or psychosocial stressors may augment risk following a suicide attempt. Furthermore, the significant mortality observed in suicide attempters underscores the need for careful aftercare planning for suicide attempters.

c) History of childhood physical and/or sexual abuse

Multiple studies have examined the association between childhood abuse and suicidal behaviors, although few have examined the effect of childhood abuse on risk for suicide per se. Plunkett et al. (36), however, assessed 183 young people who had experienced childhood sexual abuse and individuals from a nonabused comparison group 9 years after study intake. Those who had experienced childhood sexual abuse had a suicide rate that was 10.7–13.0 times the national rate, whereas no suicides occurred in the control group.

The bulk of studies have assessed the effects of childhood abuse on suicidal ideation and suicide attempts, both of which are common among individuals reporting childhood abuse. For example, in the study by Plunkett et al. (36), 43% of the 183 young people who had experienced childhood sexual abuse had thought of suicide, whereas 32% had made a suicide attempt.

Other studies have examined the effect of childhood abuse on the risk of suicidal ideation and suicide attempts. Fergusson et al. (286), in an 18-year longitudinal study of a birth cohort of 1,265 New Zealand children, found that those reporting childhood sexual abuse had higher rates of suicidal behaviors than those not reporting such abuse. In addition, the extent of childhood sexual abuse was consistently correlated with risk, with the highest risk of suicidal behaviors in those whose childhood sexual abuse involved intercourse. Even after controlling for the effects of confounding variables, the investigators found that those who reported harsh or abusive childhood experiences were also at increased risk for suicide attempts (282).

Brown et al. (294) followed a cohort of 776 randomly selected children over a 17-year period to adulthood and found that adolescents and young adults with a history of childhood maltreatment were three times more likely to become suicidal than individuals without such a history. Again, the effects of childhood sexual abuse on suicidal behavior were greater than the effects of other forms of abuse, with the risk of repeated suicide attempts being eight times greater for youths with a history of sexual abuse.

Several Australian investigators have used data from twin pairs to assess the effect of childhood abuse on the risk of suicidal ideation or suicide attempts. In structured telephone interviews with 5,995 Australian twins, Dinwiddie et al. (292) found that the 5.9% of women and 2.5% of men who reported a history of childhood sexual abuse were more likely to report suicidal ideation or prior suicide attempts. Nelson et al. (35), using data from 1,991 Australian twin pairs, found even greater rates of childhood sexual abuse (16.7% of women and 5.4% of men) but confirmed that a history of childhood sexual abuse significantly increased risk for suicide attempts, with the greatest risk associated with sexual abuse that involved intercourse. Even in twin pairs who were discordant for childhood sexual abuse, both twins had increased rates for many adverse outcomes, probably as a result of shared family background risk factors. Nonetheless, the twin who reported experiencing childhood sexual abuse had an even greater risk of a subsequent suicide attempt than the co-twin, which suggests an independent contribution of childhood sexual abuse to the risk for suicidal behaviors.

In contrast to the authors of the longitudinal studies described earlier, Romans et al. (291) selected a random community sample of New Zealand women and compared those who reported having been sexually abused as children to those who did not report such abuse. The presence of self-harming behaviors was associated with sexual abuse in childhood and was most marked in individuals who were subjected to more intrusive and frequent abuse.

Cross-sectional assessments of nonpsychiatric populations in the United States have also found associations between suicide attempts and childhood abuse, particularly childhood sexual abuse. Among the 2,918 respondents in the Duke University ECA study, Davidson et al. (293) found that subjects reporting a history of sexual assault also reported higher lifetime rates of suicide attempts than individuals without such a history. In women, a history of sexual trauma before age 16 was a particularly strong correlate of suicide attempts. Among U.S. women physicians (N=4,501), data from a nationally distributed questionnaire showed that the 4.7% of respondents with a history of childhood sexual abuse were more likely to report a history of suicide attempts (287). Kaslow et al. (230) compared 148 low-income African American women who presented to the hospital following a suicide attempt to a similar group of 137 women who presented for general medical care and found a threefold greater risk of childhood maltreatment among suicide attempters. Molnar et al. (33) analyzed data for 5,877 individuals from the National Comorbidity Survey and found that individuals with a history of sexual abuse were more likely to attempt suicide than those without such a history. This risk differed by sex, with a two- to fourfold increase in risk among women and a four- to 11-fold increase in risk among men. Dube et al. (281), in a sample of 17,337 adults (mean age=56 years), also found that the risk of suicide attempts was increased in those who had experienced childhood abuse. They observed this risk to be augmented by multiple other factors, including parental separation or divorce, witnessing of domestic violence, and living with substance abusing, mentally ill, or criminal household members.

In addition to the augmentation of suicide risk associated with sexual abuse, risk appears to be further increased among individuals who have experienced multiple forms of abuse. Anderson et al. (289) examined the association between childhood abuse and adult suicidal behavior in a sample of low-income African American women. Compared to the women who did not report experiencing any emotional, physical, or sexual childhood abuse, those who experienced one, two, or three forms of abuse were, respectively, 1.83, 2.29, or 7.75 times more likely to attempt suicide. In addition, women who reported all three types of abuse were more likely to attempt suicide than women who reported one or two types of abuse.

Childhood abuse is particularly frequent among individuals with psychiatric diagnoses and appears to increase the likelihood of suicide attempts even after the effects of psychiatric comorbidity are controlled. For example, in a study of 251 psychiatric outpatients (68 men and 183 women), Kaplan et al. (284) found that 51% of the subjects had reported experiencing childhood abuse, with 15% reporting sexual abuse alone, 17% reporting physical abuse alone, and 18% reporting a combination of physical and sexual abuse during childhood. Abusive experiences in adulthood were reported by 38% of the subjects, with physical abuse alone in 21%, sexual abuse alone in 8%, and both physical and sexual abuse in 9%. Compared to control subjects without a history of abuse, subjects with a history of abuse were more likely to have been suicidal at a younger age and to have made multiple suicide attempts. Among patients with a history of abuse, suicide attempters could be distinguished from nonattempters on the basis of higher levels of dissociation, depression, and somatization. In analyzing data from the National Comorbidity Survey, Molnar et al. (33) also found that those with a comorbid psychiatric disorder were younger at the time of their first suicide attempt than those without concomitant psychiatric illness. In addition, a history of childhood sexual abuse remained a risk factor for attempting suicide even after adjustment for the effect of a lifetime psychiatric diagnosis.

The presence of childhood physical and/or sexual abuse has also been associated with an increased likelihood of suicidality in studies of patients with specific psychiatric diagnoses. For example, Brodsky et al. (196), in a study of 214 inpatients with a diagnosis of borderline personality disorder, found that the number of lifetime suicide attempts was correlated with a history of childhood abuse. Van der Kolk et al. (285) assessed 74 individuals with personality disorders or bipolar II disorder and found that histories of childhood sexual and physical abuse were highly significant predictors of self-cutting and suicide attempts. During a follow-up pe-

riod that averaged 4 years, the patients who continued being self-destructive were those with the most severe histories of separation and neglect and those with past sexual abuse.

For individuals with major depressive disorder, evidence in the literature is more complex. Brodsky et al. (250) found that adults with major depressive disorder who had a history of childhood physical or sexual abuse were more likely to have made a suicide attempt than those who did not report an abuse history, even after adjustment for the effects of impulsivity, aggression history, and presence of borderline personality disorder. Zlotnick et al. (716), in a study of 235 outpatients with major depression, found substantial rates of diagnostic comorbidity, primarily with borderline personality disorder and PTSD. After controlling for the effects of the presence of these diagnoses, however, they did not find an independent contribution of childhood sexual abuse to the likelihood of suicide attempts.

Childhood abuse is also prevalent among individuals with substance use disorders and, again, is associated with increased rates of suicide attempts. In a group of 481 male and 321 female alcoholic inpatients (age 19–57 years), Windle et al. (288) found a high prevalence of reported childhood abuse. For women, the rates of physical abuse only, sexual abuse only, and dual abuse were 10%, 26%, and 23%, respectively, whereas for men the corresponding rates were 19%, 7%, and 5%, respectively. For both sexes, a reported history of childhood abuse was associated with a higher rate of suicide attempts, with an even larger effect associated with a history of both physical and sexual abuse. Roy (290) examined abuse histories in a consecutive series of 100 male cocaine-dependent patients and found that the 34 patients who had attempted suicide reported significantly higher scores for childhood emotional abuse, physical abuse, sexual abuse, and emotional and physical neglect than the 66 patients who had never made a suicide attempt.

In addition to increasing risk for suicide attempts within community samples and across subgroups of psychiatric patients, the presence of a childhood abuse history in individuals who have made a suicide attempt should alert the psychiatrist to a further increase in the risk of repeated attempts (284). Elliott et al. (717) compared 65 patients hospitalized for a medically serious suicide attempt to 32 patients seen in the emergency room for a suicide attempt but who were not medically hospitalized. Those with attempts that were not medically serious had higher rates of previous sexual and physical abuse as well as higher rates of traumatic life events and borderline personality disorder. Hjelmeland (164) also found that patients in a Norwegian county who required medical treatment after an initial suicide attempt were more likely to have a repeated suicide attempt during 6 years of follow-up if they had a history of being sexually abused.

In summary, there is consistent evidence, in multiple samples studied with multiple study designs, that a history of abuse augments the risk for later suicidal ideation and suicide attempts. The effect of abuse on suicide per se has been less well studied, but the few findings that are available suggest that abuse increases suicide risk. Childhood abuse and particularly childhood sexual abuse appear to be associated with greater increases in risk than childhood physical abuse or abuse during adulthood. Individuals who have experienced multiple forms of abuse are at particularly increased risk of suicidal ideation and behaviors. Although a history of abuse is common in individuals with suicide attempts and in individuals with a psychiatric diagnosis, the contribution of childhood abuse to the risk of suicidal behaviors seems to be independent of the effects of psychiatric diagnoses. Consequently, in patients who have attempted suicide as well as in those presenting for any type of psychiatric treatment, it is important to inquire about childhood and adult experiences of physical, sexual, or emotional abuse and to incorporate this information into the risk assessment and treatment planning process.

d) History of domestic partner violence

Although studies have not directly assessed the effects of domestic partner violence on risk for suicide, domestic partner violence has been associated with increased rates of suicide attempts and suicidal ideation. For example, after adjustment for the effects of sociodemographic characteristics and alcohol use in a nationally representative sample of 5,238 U.S. adults, Simon et al. (298) found

that being physically assaulted was associated with suicidal ideation or behavior (odds ratio=2.7) and that this pattern was particularly true for individuals who sustained injury (odds ratio=3.4) or were assaulted by a relative or intimate partner (odds ratio=7.7). McCauley et al. (300) surveyed 1,952 respondents in a primary medical care practice and found that 5.5% had experienced domestic violence in the year before presentation. Compared with women who had not recently experienced domestic violence, those with recent experiences of such violence were four times more likely to have attempted suicide. Among women physicians (N=4,501 respondents) who responded to the Women Physicians' Health Study questionnaire, suicide attempts were significantly more prevalent among the 3.7% of respondents with a history of domestic partner violence (34).

Domestic partner violence is particularly a risk factor for suicide attempts among women in low-income urban environments. In a group of 648 women, most of whom were young and unemployed and had an annual household income of less than $10,000, Abbott et al. (299) found that among the 418 women with a current male partner, 11.7% reported being recently assaulted, threatened, or intimidated by their partner. For the entire sample, the cumulative lifetime prevalence of exposure to domestic violence was 54.2%. Women with any exposure to domestic partner violence had an increased rate of suicide attempts, compared to women without such exposure (26% and 8%, respectively). Kaslow et al. (230) compared 148 low-income African American women who presented to the hospital after a suicide attempt to a similar group of 137 women who presented for general medical care. Women who presented with a suicide attempt had a greater likelihood of having experienced either physical or nonphysical partner abuse (odds ratios=2.5 and 2.8, respectively). Thompson et al. (301), in a sample of low-income, inner-city women, found that suicide attempters (N=119) were approximately three times more likely to experience significant physical partner abuse, nonphysical abuse, and PTSD than nonattempters (N=85). In addition, increased suicidality in individuals who were experiencing physical partner abuse appeared to depend on the presence of PTSD rather than the independent contribution to risk of the abuse.

Increased risk for suicide attempts is also seen in battered women presenting to emergency department settings or to women's shelters. Muelleman et al. (296) surveyed 4,501 women between age 19 and 65 years who presented to 10 hospital-based emergency departments in two cities serving inner city, urban, and suburban populations. Of these, 266 (5.9%) had definite or probable battering injuries and an additional 266 (5.9%) were currently in a physically abusive relationship but did not present with evidence of a battering injury. Compared to the 3,969 women (88.2%) who were not currently in a physically abusive relationship, women in physically abusive relationships were more likely to present to the emergency department after an attempted suicide. In a cross-sectional study of 203 women seeking refuge in battered women's shelters, Wingood et al. (297) found, after controlling for the effects of sociodemographic characteristics, that women experiencing both sexual and physical abuse were more likely to have attempted suicide than women experiencing physical abuse alone.

Although much more commonly experienced by women, domestic partner violence also affects men. Ernst et al. (302) surveyed 233 men and 283 women who presented to an inner-city emergency department for past and current histories of domestic partner violence and found that such experiences were associated with increased rates of suicidal ideation in both sexes. It is important to note that men with a history of domestic violence toward their partners may also be at increased risk for suicide. Conner et al. (303), for example, noted that one-half of the 42 male alcoholics who died by suicide and were originally described by Murphy et al. (149) had a history of domestic violence.

Domestic violence in the home may also affect the risk for suicide attempts among those who witness that violence. Dube et al. (281) examined the relationship to suicide attempts of eight adverse childhood experiences, including witnessing domestic violence, in 17,337 adults (mean age=56 years) and found that childhood exposure to parental domestic violence increased the risk of later suicide attempts.

Thus, although data on suicide risk per se are not available, there is clear evidence that domestic partner violence is associated with an increased risk of suicide attempts. In addition, although evidence is more limited, individuals who become violent with their partners or who observe domestic partner violence may also be at increased risk for suicidal behaviors. Since a past or current history of domestic partner violence is often overlooked, even in settings such as emergency departments where it is quite prevalent, it is important to specifically ask about domestic partner violence as a part of the suicide assessment.

e) Treatment history

A past history of treatment of mental illness, including a past history of hospitalization, should be viewed as a marker that alerts the clinician to an increase in suicide risk (64, 198). Furthermore, greater treatment intensity is associated with a higher rate of eventual suicide. For example, Bostwick and Pankratz (77) used meta-analytic techniques to calculate suicide risks for outpatients, inpatients, or suicidal inpatients and found a hierarchy in suicide risk among patients with affective disorders. The estimated lifetime prevalence of suicide in those ever hospitalized for suicidality was 8.6%, compared to a lifetime suicide rate of 4.0% for all hospitalized patients. For mixed inpatient/outpatient populations, the lifetime suicide prevalence was even lower, at 2.2%, whereas for the population without affective illness, it was less than 0.5%. A similar phenomenon was noted by Simon and VonKorff (718) among patients treated for depression in a large health plan in western Washington State. Computerized discharge diagnoses, outpatient visit diagnoses, and outpatient prescription records were used to identify all enrollees who received treatment for depression during a 3-year period. During the study period, 35,546 individuals received some treatment for depression and accounted for 62,159 person-years of follow-up. Thirty-six individuals (4.2% of all deaths) were classified as having definitely or possibly died by suicide, yielding an overall suicide mortality rate of 59 per 100,000 person-years, with the rate for men more than threefold higher than the rate for women. Patients who received any inpatient psychiatric treatment had a risk for suicide of 224 per 100,000 person-years, with suicide rates among those who received outpatient specialty mental health treatment and those treated with antidepressant medications in primary care of 64 and 43 per 100,000 person-years, respectively. No patient with a diagnosis of depression who was treated only in primary care and who did not receive antidepressant medication died by suicide.

In terms of suicide attempts, Pirkis et al. (198) analyzed data for 12,229 patients in 13,632 episodes of care and found that the risk of suicide attempts was 10-fold higher in acute inpatient settings, compared with longer-stay inpatient or community-based settings (5.4 attempts per 1,000 episode-days, compared with 0.6 and 0.5 attempts per 1,000 episode-days, respectively). Thus, the rate of suicidality is increased in individuals with prior inpatient treatment, although it is not clear whether the rate is higher because the patients have more severe illnesses (and are deemed to be at increased risk for suicide) or because hospitalization increases suicide risk by increasing emotional or psychosocial distress.

Temporally, the risk for suicide appears to be greatest after changes in treatment setting or intensity (304). Recently admitted and recently discharged inpatients show particularly increased risks (64, 72), and this pattern is seen across diagnostic categories (91, 95, 305–308). Rates decline with time since discharge but may remain high for as long as several years (91, 306, 309). For example, Pirkis and Burgess (309) systematically reviewed the literature on suicide and health care contacts and found that up to 41% of those in the general population who die by suicide may have had psychiatric inpatient care in the year before death, with up to 9% dying by suicide within 1 day of discharge. Appleby et al. (304) compared individuals who died by suicide within 5 years of discharge from psychiatric inpatient care to surviving demographically matched patients and found that those who died by suicide were more likely to have had their care reduced at the final appointment in the community before death (odds ratio=3.7).

Black et al. (91) assessed 5,412 patients admitted to the University of Iowa Psychiatric Hospital and found that 331 died over a 9-year follow-up period. Ninety-nine percent of all premature deaths occurred during the initial 2 years after discharge, with the risk for premature death being greatest among women and the young. Over the initial 2-year period, 29% of deaths were by suicide and suicide occurred at a rate that was more than 50 times the expected rate for the group as a whole.

Roy (96) compared 90 psychiatric patients who had attempted suicide (53 male patients and 37 female patients) to a group of 90 matched control subjects who had not attempted suicide. Of the 75 patients who had died by suicide as outpatients, 58% had seen a psychiatrist within the previous week, 81% had been admitted in their last episode of contact, and 44% of those who had been inpatients attempted suicide within 1 month of discharge.

Goldacre et al. (307) determined the risk of suicide within a year of psychiatric discharge in a population-based study in Oxford, U.K., and found that SMRs for suicide in the first 28 days after discharge from inpatient care were 213 and 134 for male and female patients, respectively. The rate of suicide in the first 28 days after discharge was 7.1 times higher for male patients and 3.0 times higher for female patients than the rate during the remaining 48 weeks of the first year after discharge.

More recently, Appleby et al. (306) analyzed data for 10,040 individuals in the United Kingdom who died by suicide over a 2-year period and found that 2,370 (24%) had been in contact with mental health services in the 12 months before death. Of these, 358 (16%) were psychiatric inpatients at the time of death, and one-fifth of those patients were being monitored with special observation procedures. An additional 519 suicides (24%) occurred within 3 months of hospital discharge, with the highest number occurring in the first week. Rossau and Mortensen (95) found that 508 suicides occurred among 9,156 patients who were admitted to psychiatric hospitals in Denmark between 1970 and 1987 and who received a diagnosis of schizophrenia for the first time. Suicide risk was particularly high during the first 5 days after discharge, and risk was also increased in individuals with multiple admissions during the prior year.

Similar findings have been reported for suicide attempts, which are also more frequent in the period following hospitalization. Oquendo et al. (267) followed 136 patients after hospitalization for major depressive disorder and found that 15% of the subjects made a suicide attempt within 2 years, with more than 50% of attempts occurring within the first 5 months of follow-up.

Given that the intensity of past treatment is associated with risk for suicide and suicide attempts, the treatment history is an important part of the assessment process. In addition, these observations suggest specific points in the course of treatment (e.g., hospital discharge or other changes in treatment setting) at which risk of suicidal behaviors may be particularly increased. Awareness of these factors will allow the psychiatrist to take them into consideration in developing a plan of treatment with the patient.

f) Illness course and severity

In some psychiatric disorders, suicide risk is greater at certain points in the illness or episode course. Multiple studies have shown that suicidality tends to occur early in the course of affective disorder, often before diagnosis or before treatment has begun (310, 719). These observations emphasize the importance of early identification of these disorders and early implementation of effective interventions.

Appleby et al. (304) compared individuals who died by suicide within 5 years of discharge from psychiatric inpatient care to surviving demographically matched patients and found that suicide was more likely in those whose index hospitalization was at the beginning of their illness (odds ratio=2.0). Bradvik and Berglund (317) followed 1,206 inpatients who had received a discharge diagnosis of severe depression/melancholia between 1956 and 1969. At the time of the initial follow-up in 1984, 22% had died by suicide, whereas by the second follow-up in 1998, an additional 4% had died by suicide. Although mortality due to suicide declined with time, the

standardized mortality was still increased late in the course of depressive illness (SMR=1.3). Osby et al. (73) identified all patients in Sweden with a hospital diagnosis of bipolar disorder (N=15,386) or unipolar depressive disorder (N=39,182) between 1973 and 1995 and determined the date and cause of death using national registries. They found that the SMR for suicide was especially high for younger patients during the first years after initial diagnosis, although an increasing SMR was found for female patients with major depressive disorder over the course of the study. Fawcett et al. (313) found that for the 954 patients with major affective disorder in the NIMH Collaborative Program on the Psychobiology of Depression, 32% of the 25 suicides occurred within 6 months and 52% occurred within 1 year of entry into the study.

Suicide has been noted to be more likely early in the illness course in individuals with schizophrenia. Westermeyer et al. (83), for example, compared 36 patients with schizophrenia who died by suicide to a similar group of patients who did not die by suicide and found that individuals with schizophrenia and other psychotic disorders were especially vulnerable to suicide within the first 6 years of their initial hospitalization. Suicides were present throughout the course of schizophrenia in the National Suicide Prevention Project in Finland (100).

Although patients' risks for suicide and suicide attempts later in the illness course are less than those earlier on, their risks remain greater than those in the general population (74, 100, 316, 317). Angst et al. (74) followed 406 hospitalized patients with affective disorder for 22 years or more and found that the suicide rate was most elevated at the age of onset but that, from age 30 to 70 years, the suicide rate was remarkably constant despite the different courses of illness. Ahrens et al. (316) examined the illness course of 310 patients with mood disorder, 98 of whom had made a suicide attempt, and found no significant correlation between age and suicide attempts, suggesting that the rate of suicide attempts was not declining as the patient aged and the illness progressed. Malone et al. (312) analyzed data for 100 inpatients during a major depressive episode and noted that the first 3 months after the onset of a major depressive episode and the first 5 years after the lifetime onset of major depressive disorder represented the highest-risk period for attempted suicide, independent of the severity or duration of depression.

Risk for suicide may also vary with the severity of symptoms. For example, Brown et al. (78) prospectively followed 6,891 psychiatric outpatients and found that in the 49 (1%) who died by suicide the severity of depression, hopelessness, and suicide ideation were significant risk factors. In contrast, in individuals with schizophrenia, low levels of negative symptoms have been associated with increased suicide risk (93).

It is also important to recognize that other factors such as age modulate the effects of symptom severity on risk. With older adults, for example, milder symptoms may be associated with greater risk than moderate symptoms in younger adults (66). Waern et al. (207) analyzed data for 85 individuals over 65 years of age who had died by suicide and 153 randomly selected living comparison subjects and found that elevated suicide risk was associated with minor as well as major depressive disorder.

In terms of attempted suicide, Mann et al. (31) followed 347 consecutive patients after admission to a university hospital and found that the objective severity of current depression or psychosis did not distinguish the 184 patients who had attempted suicide from those who had never attempted suicide. However, those who had attempted suicide reported higher levels of subjective depression and suicidal ideation and fewer reasons for living. Corbitt et al. (195), using data from structured interviews of 102 psychiatric inpatients, found that past suicidal behavior was better predicted by the number of criteria for borderline personality disorder and other cluster B personality disorders that were met than by depressive symptoms.

That the risk for suicidality may be associated with symptom or illness severity suggests that it is important to determine the magnitude and not simply the presence of risk factors as part of the assessment process. In addition, when estimating risk and implementing a plan of treatment to address risk, variations in risk with illness course may need to be considered in the context of other patient-specific factors.

5. Physical illness

Considerable evidence derived from a variety of sources supports a link between physical illness and suicide (Table 7). Methods used to establish this relationship have included record linkage and prospective cohort studies of clinical samples with specific physical illnesses, as well as retrospective examinations of the prevalence of specific physical illnesses in samples of individuals who took their own lives.

Harris and Barraclough (25) conducted a comprehensive, systematic literature review and meta-analysis to determine the suicide risk associated with 63 specific physical disorders that had been posited to influence this risk. They did not include reports of epilepsy, conceding that the evidence base was already strong for its association with suicide. Their review yielded 235 reports that met the specific criteria for consideration, from which data were abstracted to enable calculation of pooled SMRs for each condition. The authors concluded that the disorders demonstrating significantly increased risk for suicide included HIV/AIDS, Huntington's disease, malignant neoplasm, multiple sclerosis, peptic ulcer disease, chronic hemodialysis-treated renal failure, spinal cord injury, and systemic lupus erythematosus. The data were insufficient to conclude whether amputation, valve replacement, intestinal diseases, cirrhosis, Parkinson's disease, or systemic sclerosis conferred an increased risk for suicide. Surprising findings included the association of amyotrophic lateral sclerosis, blindness, stroke, diabetes mellitus, rheumatoid arthritis, and hypertension with only average risk that was no greater than that in the general population. Pregnancy and the puerperium were associated with a statistically reduced risk for suicide. Although the authors were unable to examine the influence of mental disorders or other mediating or moderating effects, many of the disorders associated with increased risk are also associated with mental disorders (e.g., multiple sclerosis with depression and peptic ulcer disease with alcohol abuse). Therefore, when the influence of comorbid psychiatric illness is accounted for, the independent risk associated with physical illness may be less.

Quan and colleagues (337) reported results of a record linkage study conducted in Alberta, Canada, that was designed to establish whether specific illnesses distinguish persons who died by suicide from comparison subjects who died in accidents. In univariate statistical analyses comparing 822 persons age 55 years and older who died by suicide with 944 subjects of similar age who died in motor vehicle accidents, those who died by suicide were more likely to have had malignant neoplasm, arteriosclerotic heart disease, chronic obstructive pulmonary disease, peptic ulcer disease, prostate disorders, depression, and other psychiatric diagnoses. In multivariate analyses in which the effects of demographic and health characteristics were controlled, arteriosclerotic heart disease and peptic ulcer disease did not differentiate the groups. Among the physical illnesses, only malignant neoplasm and prostate disorders (excluding prostate cancer) remained significant predictors, along with chronic obstructive pulmonary disease in married (but not single) men.

Grabbe and colleagues (338) used data from the National Mortality Followback Survey to identify health status variables related to suicide in older persons, compared with natural deaths and deaths from injury. In comparing suicides with injury deaths, they found that malignant neoplasm, but not lung conditions, was associated with increased risk. The presence of a stroke, paradoxically, appeared to lower risk. The study reinforced the powerful influence of cancer.

Other studies have also specifically looked for associations between suicide and central nervous system disorders that are known to increase the rates of depressive syndromes. Stenager et al. (334), for example, found that patients with a diagnosis of multiple sclerosis after age 40 were at no greater risk for suicide than control subjects, but that men and women who received this diagnosis before age 40 were at approximately three times and two times greater risk, respectively. Stenager et al. (720) also cross-referenced data for all patients discharged with a diagnosis of a cerebrovascular accident in selected areas of Denmark between 1973 and 1990 with death records and found 140 suicides among almost 38,000 patients with a history of cerebrovascular accident and increased suicide risks for both men and women with this diagnosis in all age

groups. In general, risk for suicide was higher in women than in men and in age groups under age 60 years, compared to older adults. The group at highest risk was women under age 50 with a stroke, who had a risk for suicide almost 14 times greater than that for women of similar age in the general population. These data provide additional support for an association between suicide and cerebrovascular disease, particularly among younger and middle-aged stroke patients.

Evidence for increased suicide risk in people with epilepsy is similarly strong. Stenager and Stenager (323) examined all published reports concerning the link between suicide and neurologic disorders in order to critically evaluate the strength of the evidence. They identified a variety of common methodologic problems in this body of research, including sources of bias in selection of cases, inadequate definition of control samples, imprecise definitions of disease, inadequate sample sizes, absent or imprecise definitions of suicidal behavior, and inadequate follow-up intervals. Nonetheless, they concluded that sufficiently rigorous studies of patients with multiple sclerosis, patients with spinal cord injury, and selected groups of patients with epilepsy did establish increased risk in these conditions. The most rigorous studies examining risk associated with epilepsy were conducted by White and colleagues in 1979 (324). They followed 2,099 patients with epilepsy who had been committed for institutional care and treatment and compared their risk for suicide with that in an age- and sex-standardized control population. They found that individuals with epilepsy were at 5.4 times higher risk for suicide than the control subjects.

Rafnsson et al. (326) analyzed data for 224 individuals who first received a diagnosis of unprovoked seizures in Iceland between 1960 and 1964 and who were followed for up to 25 years. Among men, the relative risk of dying by suicide was almost six times the expected risk in the general population, and the rates of death from accidents, poisoning, and violence were about three times the expected rates.

Nilsson et al. (325) used data from the Swedish National Cause of Death Register to determine causes of death among 6,880 patients with a diagnosis of epilepsy registered in the Stockholm County In-Patient Register. In a comparison of 26 individuals who died by suicide and 23 individuals suspected of having died by suicide with 171 living control subjects, individuals with an onset of epilepsy before age 18 had a higher risk for suicide than those with comorbid psychiatric diagnoses or those treated with antipsychotics. However, unlike other studies, this study did not find a specific association with particular types of epilepsy, including temporal lobe seizures.

Suicide attempts also appear to be increased in frequency among patients with epilepsy, compared to the general population. Hawton et al. (330) analyzed data for patients admitted after deliberate self-poisoning or self-injury over a 2-year period and found that the number of patients with epilepsy was five times higher than general population prevalence rates. Mendez et al. (329) compared 175 outpatients with epilepsy to a group of 70 comparably disabled outpatients and found that prior suicide attempts were reported by 30% of the patients with epilepsy, compared to only 7% of the control subjects. Rates of depression were similarly increased among the patients with epilepsy (55%, compared with 30% of the control subjects). In a subsequent study, Mendez et al. (331) compared 62 patients with epilepsy to 62 patients with schizophrenia and to 62 patients with both diagnoses and found that suicidal behaviors were more common among individuals with epilepsy.

The association between terminal physical illnesses and suicide is complex. Brown and colleagues (721) found that 34 of 44 terminally ill patients receiving palliative care had never wished for an early death. All of the 10 patients who had wished for an early death were found to have clinical depressive illness, but only three reported suicidal ideation. Chochinov and colleagues (342) interviewed 200 patients who had terminal cancer to determine their psychiatric status and whether they had thoughts of death. Almost 45% had wished for an early death, but in only 8.5% were the thoughts serious and persistent. Predictors of desire for death included pain, a low level of family support, and clinically significant depression. Diagnosable depressive illness was found in almost 60% of those with a desire to die and in 8% of those without a desire to die.

Other features of physical illness that may augment the likelihood of suicidal ideation or suicide include functional impairments (338), pain (340, 341), disfigurement, increased dependence on others, and decreases in sight and hearing (321, 333). Waern et al. (333) compared consecutive records of people who had died by suicide (46 men and 39 women) with those of living control participants selected from the tax register (84 men and 69 women) in Gothenburg, Sweden. In addition to neurological disorders and malignant disease, which were associated with three- to fourfold increases in suicide risk, visual impairment and serious physical illness of any type were also associated with increased risk, with odds ratios of 7.0 and 6.4, respectively. Although the number of women in the sample was small, the risk appeared to be greater among men, particularly in those with a high burden of physical illness. Conwell et al. (321) also found physical illness burden and functional limitations to be more common among individuals seen in primary care settings who die by suicide. They compared 196 patients age 60 years and older from a group practice of general internal medicine (N=115) or family medicine (N=81) to 42 individuals age 60 years and older who had visited a primary care provider and who died by suicide within 30 days of their visit. Those who died by suicide were significantly more likely than control subjects to have had a depressive illness, greater functional impairment, or a larger burden of physical illness.

While several studies have shown that people with HIV and AIDS are at high risk for suicide, the data on the extent of that risk vary. In particular, suicide risk among people with HIV/AIDS is likely to relate to other comorbid factors such as substance abuse and other psychiatric diagnoses, stigma, social isolation, and lack of support (722), as well as the direct effects of HIV on the brain (335, 723). Even at the time of HIV serum antibody testing, suicidal ideation is highly prevalent, being noted by about 30% of individuals and diminishing over time after notification of test results (724). Nonetheless, elevations in the suicide rate are present among persons with AIDS and range from seven to 36 times the rates in comparable age- and sex-matched populations (335, 336, 725). For example, Marzuk et al. (335) studied suicide rates in 1985 in New York City and found a rate of 18.75 per 100,000 person-years for men age 20–59 years without a known diagnosis of AIDS, compared to 680.56 per 100,000 person-years for those with a known diagnosis of AIDS, a 36-fold increase in relative risk. Cote et al. (336) used public-access AIDS surveillance data and National Center for Health Statistics multiple-cause mortality data for the period from 1987 through 1989 to identify suicides among persons with AIDS and found that all but one of the persons who died by suicide were male. Compared to demographically similar men in the general population, men with AIDS had a rate of suicide that was 7.4-fold higher, at 165 per 100,000 person-years of observation. Cote et al. also noted that the suicide risk for persons with AIDS decreased significantly from 1987 to 1989, suggesting that the rate of suicide associated with AIDS may be decreasing.

In summary, physical illnesses are associated with increased risk for suicide. The strength of the evidence for malignant neoplasms, central nervous system disorders, peptic ulcer disease, and HIV/AIDS is strong. Although the evidence is less compelling, indications are that a range of other conditions may also be associated with suicide and suicidal behaviors. It is probable that mood and substance use disorders, either as precipitants or sequelae, account in part for the increased SMRs for suicide ascribed to specific physical conditions in the literature. However, further study is needed to determine the role of social and psychological factors as mediators or moderators of the relationship between physical illness and suicide. As a result, in assessing suicide risk among individuals with physical illness, consideration should be given to the presence of comorbid mood symptoms as well as to the functional effects of the illness.

6. Family history

Findings from at least three types of studies suggests that risk for suicide has a familial and probably genetic contribution. These include: 1) strong and consistent findings that risk for suicidal behavior is much higher among first-degree relatives of individuals with suicide attempts or

deaths than in the general population, 2) higher concordance for suicidal behavior among identical versus fraternal twins, and 3) greater risk of suicidal behavior among biological versus adoptive relatives of persons adopted early in life who later died by suicide (365–368). These familial associations appear to be accounted for only partly by familial risks for major affective illness or other clinical risk factors for suicide. Recent efforts to specify molecular genetic markers that segregate or associate with suicidal behavior, including those relating to the serotonin (5-hydroxytryptamine [5-HT]) neurotransmission system, have yielded inconsistent findings that are not easily interpreted (17, 366, 368).

a) Family studies

Evidence from family studies of suicide was recently summarized by Turecki (368). In addition to studies showing increased rates of suicidal behaviors among family members of suicidal individuals (31, 82, 360–364), at least 20 reports of controlled comparisons involving more than 11,000 subjects have been published (202, 214, 312, 344–359). The pooled overall relative risk of suicidal behavior in first-degree relatives of suicidal probands compared to control or population risks, weighted by the number of subjects in each study, was 4.48 (95% CI=3.71–5.25), indicating a nearly 4.5-fold excess of risk of suicidal behavior among relatives of suicidal subjects, compared to nonsuicidal subjects (R. Baldessarini, personal communication, 2002).

Across studies, reported estimates of relative risk for suicidal behavior within families vary greatly, depending in part on the types of behavior included (suicide, suicide attempts of varying lethality, or both) and their defining criteria, the prevalence of psychiatric risk factors for suicide among the control subjects, the closeness of kinship (first-degree relatives, including parents and siblings, with or without second-degree relatives), and differences in sample size. Such studies, while demonstrating a powerful association, do not prove genetic risk nor rule out shared environmental factors. Moreover, it remains to be proved that the relationship for suicide is separable from the well-known heritability of leading risk factors for suicide, including major affective illness. Nevertheless, the findings from pooled family studies strongly support the conclusion that overall risk for suicidal behavior is at least four times greater among close relatives of suicidal persons than among unrelated persons.

b) Twin studies

A powerful method of separating risks that result from shared environments from risks that result from genetic factors is to compare the rate of concordance (index condition appearing in both twins) for a condition between identical, or monozygotic (single-egg), twins and fraternal, or dizygotic (two-egg), twins. Risks for dizygotic twins should be similar to those found among other first-degree family members in family studies. Seven such twin studies pertaining to suicide were identified in the research literature (365, 370–375) and reviewed by Roy et al. (365, 369) and Turecki (368). None of the studies involved samples of twins raised separately from early life, and, thus, the confounding effects of shared environments were possible. Moreover, the size and statistical power of these studies varied markedly, from an analysis of a single monozygotic twin-pair (373) to a study of an entire Australian national twin registry involving more than 1,500 monozygotic and nearly 1,200 dizygotic twin-pairs (375). When the data from all seven twin studies were pooled, the overall concordance rate for suicide or suicide attempts, weighted for the numbers of subjects involved, was 23.5% (401 of 1,704) for monozygotic twin-pairs and 0.135% (two of 1,486) for dizygotic twin-pairs, for a highly significant 175-fold increase in pooled relative risk in the monozygotic twin-pairs (R. Baldessarini, personal communication, 2002). Given the low frequency of suicidal behavior found among fraternal co-twins, this relative risk is likely to be a quantitatively unstable estimate. Nevertheless, its magnitude strongly supports a genetic contribution to suicidal behavior. A highly significant fourfold excess of risk in identical twins remained, even after statistical corrections for depressive and other psychiatric morbidity associated with suicide (375). Therefore, twin studies add

strong support for the heritability of suicide risk that is separate from the heritability of risk factors such as mood disorders but that is still likely to be influenced by environmental factors.

c) Adoption studies

A less commonly employed technique to separate genetic from shared environmental factors is to study outcomes for persons adopted from their biological families very early in life. For the study of suicide, this approach has been reported only three times, and each study used the same Danish health and vital statistics registers that included data for 5,483 adoptions in greater Copenhagen between 1924 and 1947 (376–378). When data for suicide were pooled across all studies, to include affectively as well as psychotically ill probands (376, 378), there was an approximately fivefold greater risk among biological than among adoptive relatives (20 of 543 subjects [3.68%] versus two of 263 subjects [0.76%]).

Later, the same American and Danish collaborators (378) compared all adoptees identified as having an affective spectrum disorder (N=71) with matched control adoptees without such disorders (N=71). The index disorders included not only DSM-III major depression and bipolar disorder but also milder "neurotic" depressions and a condition ("affect reaction") marked by affective instability that may resemble some forms of personality disorder in current classifications. In relatives of affectively ill adopted probands, there was a significant, approximately sevenfold greater risk for suicide in biological relatives, compared with adopted relatives (15 of 387 subjects [3.88%] versus one of 180 subjects [0.56%]). Further analysis of the suicide rate for biological relatives, compared with control subjects, also yielded a highly significant 13.3-fold difference (15 of 387 subjects [3.88%] versus one of 344 subjects [0.29%]) (378). In striking contrast, however, when suicide attempts were considered separately, there was a 1.16-fold lower but nonsignificant risk in the biological relatives, compared with the adoptive relatives, of affectively ill adopted probands (13 of 387 subjects [3.36%] versus seven of 180 subjects [3.89%]). A similar comparison of the rate of suicide attempts in biological relatives of adopted probands and in matched but not affectively ill control subjects showed a modest 2.89-fold difference that failed to reach significance (13 of 387 subjects [3.36%] versus four of 344 subjects [1.16%]). Among relatives of index adoptees with a diagnosis of schizophrenia, there was a nonsignificant 2.67-fold greater risk for suicide in biological relatives, compared with adoptive relatives (five of 156 subjects [3.20%] versus one of 83 subjects [1.20%]) (376).

Matched comparison of 57 early-adopted individuals who died by suicide with other adoptees lacking evidence of suicide or psychiatric illnesses also showed a great excess risk of suicide in biological over adoptive relatives (12 of 269 subjects [4.46%] versus none of 148 subjects [0.00%]) (378). Risk of suicide was approximately sixfold greater in relatives of suicidal probands compared to relatives of matched, nonsuicidal control subjects (12 of 269 subjects [4.46%] versus two of 269 subjects [0.74%]). However, this study did not consider the possible coincident heritability of clinical risk factors for suicide, such as major affective illnesses and substance use disorders.

Overall, these adoption studies indicate a greater risk of suicide, but not of suicide attempts, among biological relatives of suicidal probands, compared with adoptive relatives. They also show greater risk among biological relatives of probands, compared with control subjects, that is consistent with the hypothesis that suicidality is heritable. Given the broader range of severity and lethality of suicide attempts and the greater likelihood of environmentally determined actions in many instances, the heritability of suicide may well be much greater than that of suicide attempts.

7. Psychosocial factors

a) Employment

Unemployment has long been associated with increased rates of suicide (379, 380, 726). Furthermore, the link between suicide and unemployment has been confirmed by a recent study

that used U.S. National Longitudinal Mortality Study data to assess whether unemployed individuals were at greater risk for suicide than employed persons (24). At 2-year follow-up, unemployed men were two to three times more likely to have died by suicide, compared with employed men. Living alone, being divorced, and having lower socioeconomic status increased the suicide risk. At or beyond 4 years of follow-up, however, there was no statistical association between unemployment and suicide for men. For women, the relationship between suicide and unemployment was even stronger and longer-lasting. Unemployed women had a much higher risk for suicide at each year of follow-up than employed women. Unemployed women continued to show an elevated risk at 9-year follow-up, by which time they were three times as likely to die by suicide as employed women. As with men, younger unemployed women were more at risk than women over age 45 years. While the number of women who died by suicide was small, the results remain significant and powerful. While in the past men were considered most at risk for suicide after becoming unemployed, it is now known that women are at an even greater risk and for a longer period of time. The relationship between unemployment, suicide, and psychiatric disorders remains unclear. Persons with psychiatric disorders may be more likely to quit jobs or to be fired as well as more likely to die by suicide (727).

Areas with socioeconomic deprivation also have larger numbers of unemployed people, and these differences have been used to examine effects of unemployment on rates of suicide and suicide attempts. Hawton et al. (386), for example, analyzed data for different wards, or communities, within Oxford, England, and found that wards with the highest socioeconomic deprivation were associated with the highest rates of suicide attempts. Individuals who attempted suicide, both men and women, were more likely to be unemployed, living alone, and having problems with housing. For men, but not for women, a strong association was also found between the rate of suicide attempts and socioeconomic deprivation. Men living in less deprived areas who had financial problems were even more likely to attempt suicide, suggesting that the dissonance between one's own financial status and that of the neighborhood may affect risk. Unemployment and financial problems can affect suicide in other ways as well. Alcohol consumption and marital conflict, each of which increases with financial difficulties or unemployment, may also contribute to increased risk for suicidal behaviors.

Political context and large-scale economic changes can also influence suicide and may provide clues about the effect of employment status on suicide rates. During times of war, for example, suicide rates decline (728), whereas increased suicide rates are found in political systems associated with violence or social movements. Areas of the former Soviet Union with high levels of sociopolitical oppression (i.e., Baltic States) have had higher suicide rates than other regions with less oppression (729). From an economic standpoint, research on the business cycle and suicide has relied primarily on unemployment rates, but other indicators include growth rates of the gross domestic product, the Ayres index of industrial activity, change in the stock market index, and the rate of new dwelling construction (730). Especially for men, the data suggest that the greater the prosperity, the lower the suicide rate, and, conversely, the greater the trend toward recession, the greater the suicide rate. During periods of high unemployment, such as the Great Depression, the relationship of unemployment to suicide is strengthened (731). However, studies using the Ayres index of industrial activity and monthly suicide trends have suggested that large swings in industrial production, such as those that occurred during the 1930s, are needed to influence the suicide rate (732).

In summary, it is important to ascertain the patient's employment status as part of the assessment process, since unemployment may increase suicide risk, whereas employment may offer some protection against suicide and suicide attempts. However, a patient's job status should also be considered in terms of other psychosocial stressors that may be related to job loss, such as financial or marital difficulties. In addition, there is often a complex interplay between employment status and psychiatric illness, including substance use disorder, that may influence treatment planning.

b) Religious beliefs

Limited evidence points to religion as a protective factor against suicide. Pescosolido and Giorgianna (733) used suicide rates from the National Center for Health Statistics, data on affiliation rates in various Christian denominations from the National Council of Churches, and data on Jewish affiliation from the American Jewish Yearbook to determine whether suicide rates differ according to religious affiliation. They found that religion affected suicide rates, with Catholicism, Evangelical Protestantism, and membership in Church of the Nazarenes being associated with lower rates and Jewish affiliation producing a small but inconsistent protective effect. In contrast, various denominations of mainstream Protestantism tended to be associated with increased suicide rates.

Within specific religious denominations, the strength of religious belief may also play a role. Maris (394) compared suicide rates among Catholics and Protestants in Chicago between 1966 and 1968. Scores on church attendance, perception of religiosity, and influence of religion were negatively associated with suicidal ideation. After controlling for the effects of confounding variables such as sex, marital status, and socioeconomic status, Maris found that the perceived influence of religion was the most significant correlate of suicidal ideation. In immigrants from Central America, infrequent church attendance and low levels of perceived influence of religion were related to high levels of suicidal ideation (43). Thus, religious involvement may serve as a protective factor against suicide, either by helping to buffer acculturative stress (43) or by enhancing social networks and support (733).

In summary, some evidence suggests that religious beliefs and the strength of those beliefs may offer protective effects in relation to suicide risk. At the same time, these protective effects neither are specific to particular religious denominations nor are invariably present. Indeed, for some individuals, religious beliefs or beliefs about death may increase rather than decrease the likelihood of acting on suicidal thoughts. Consequently, the clinician may wish to gain an understanding of the patient's specific religious beliefs and the depth of the patient's religiosity as well as determine the ways in which these beliefs influence the patient's conceptions of death and suicide.

c) Psychosocial support

Although it is often difficult to distinguish perceived from objective measures of social support, available data strongly suggest that the presence of a social network is a powerful and independent predictor of suicide risk. In particular, those who have (or perceive themselves to have) supportive interpersonal relationships are at lower risk for suicide than those without such actual or perceived supports. Rubenowitz et al. (405) used the psychological autopsy method to compare 85 persons age 65 years and older who died by suicide with 153 age- and sex-matched living persons selected from the tax roster in Gothenburg, Sweden. In addition to identifying a powerful influence of psychiatric disorders, they found that family discord was a significant risk factor for those who died by suicide (odds ratio≈19). Further, being active in a social club was a significant protective factor for both men and women. Another recent psychological autopsy study compared 53 individuals age 55 years and older who had either died by suicide or made a serious suicide attempt with 269 matched control subjects (403). Psychiatric illness was again a powerful predictor of suicide case status, but, in addition, those who died by suicide had significantly fewer social interactions and significantly more relationship problems, compared to the control subjects. Turvey and colleagues (400) used data from the Established Populations for Epidemiologic Studies in the Elderly database to identify 21 elderly persons who died by suicide over a 10-year follow-up period and compared those subjects to 420 control subjects matched for age, sex, and study site. In addition to depressive symptoms, poor perceived health status, and poor sleep quality, the absence of a relative or friend in whom to confide was a significant risk factor for late-life suicide. Finally, Miller (399) compared 30 men age 60 years and older who died by suicide with 30 men, matched on age, race, marital status, and county of residence, who died of natural causes. He reported that the control subjects were sig-

nificantly more likely to have had a confidante and that the subjects who died by suicide had significantly fewer visits with friends and relatives. Thus, while social support is a complex construct and the data on this factor come primarily from elderly populations, decreases in measures of social support appear to increase suicide risk, and, conversely, increases in social support may serve as a protective factor in relation to suicide.

d) Reasons for living, including children in the home

An additional protective factor against suicide is the ability to cite reasons for living, which often reflect the patient's degree of optimism about life. Malone et al. (231) assessed 84 patients, 45 of whom had attempted suicide, to determine whether "reasons for living" might protect or restrain patients with major depression from making a suicide attempt. Depressed patients who had not attempted suicide were found to have expressed more feelings of responsibility toward their families, more fear of social disapproval, more moral objections to suicide, greater survival and coping skills, and a greater fear of suicide than the depressed patients who had attempted suicide. Although objective severity of depression and quantity of recent life events did not differ between the two groups, scores for hopelessness, subjective depression, and suicidal ideation were significantly higher for the suicide attempters.

Particularly in women, the presence of children in the home is an additional factor that appears to protect against suicide. Hoyer and Lund (26) used data from the Norwegian Central Bureau of Statistics to prospectively follow 989,949 women over a 15-year period. During that time there were 1,190 deaths from suicide, with parous women of all ages having lower relative risks than nonparous women (relative risk=0.4–0.8, depending on age). For both premenopausal and postmenopausal women, a strong linear decrease in relative risk for suicide was found with an increasing number of children.

Consequently, during the assessment and treatment planning process, clinicians should discuss reasons for living with at-risk patients and the need to develop coping skills that may serve as protective factors during periods of high risk for suicide.

e) Individual psychological strengths and vulnerabilities

A number of personality traits and characteristics have been associated with suicide and suicidal risk and behaviors. Conner et al. (217) reviewed the literature on psychological vulnerabilities to suicide, including 46 publications describing 35 distinct case-control or cohort samples, and found no evidence for a link between suicide and guilt or inwardly directed anger. They did find that suicide was consistently associated with five constructs—impulsivity/aggression, depression, hopelessness, anxiety, and self-consciousness/social disengagement. Although other factors often moderate the relationships between these variables and suicide, they are not always interpretable in the literature because of measurement and definitional issues. Nonetheless, psychological vulnerabilities likely influence suicide risk by exacerbating other psychiatric or social risk factors in individual patients.

A number of other concepts have also been explored in relating suicide to individual vulnerabilities. For example, Duberstein (423) used questionnaires to assess personality dimensions in 81 depressed patients over age 50 and found that individuals who reported lower levels of openness to new experiences were less likely to report suicidal ideation. These findings are consistent with other work, suggesting that elderly persons tend to deny suicidality, whereas younger persons tend to exaggerate it. These findings may also provide support for the protective role of expressing suicidal ideation. Thus, when closed-minded people do come into contact with treatment services, their psychiatric symptoms may not be as obvious and their need for treatment may not be appreciated.

Hughes and Neimeyer (422) assessed 79 hospitalized psychiatric patients, 91% of whom had a principal diagnosis that included depression, and examined the utility of several cognitive

variables as predictors of suicidal ideation. Level of pessimism, as measured by the Hopelessness Scale, was the best predictor of subsequent suicidal ideation and was reliably related to placement on either one-to-one observation or every-15-minute checks for suicide precautions. In addition, hopelessness, self-negativity, polarization (all-or-nothing thinking), and poor problem-solving performance were associated with suicidal ideation, whereas self-evaluated problem-solving ability was not. A low level of constriction was related to the intensity of subsequent suicidal ideation and to later suicide attempts.

Josepho and Plutchik (409) investigated the relationship between interpersonal problems, coping styles, and suicide attempts in 71 adult psychiatric inpatients. Patients who were hospitalized after a suicide attempt had more interpersonal problems and also had distinct patterns of coping methods, including more use of suppression and substitution and less use of replacement. These coping styles were also associated with higher scores on a rating of suicide risk. After controlling for the effect of interpersonal problems, the authors found that greater suppression, less minimization, and less replacement were significantly related to increased suicide risk scores. The higher the risk score, the greater the likelihood that the patient was admitted to the hospital secondary to a suicide attempt. Depressed patients also had higher suicide risk scale scores.

Stravynski and Boyer (401) collected data from 19,724 persons who returned the Quebec Health Survey and tested whether there was an association between loneliness and suicidal thoughts or behaviors in the general population. A significant correlation was found between experiencing suicidal ideation or attempting suicide and living alone, having no friends, or feeling alone, with psychological distress being the strongest correlate of suicidal ideation. Of individuals who were severely distressed and very lonely, 25% reported serious suicidal ideation or actions. Overall, thoughts of suicide were reported by 3.1% of the population, and 0.9% had attempted suicide.

Maser et al. (247) examined the correlations between suicide and clinical and personality factors in 955 depressed patients who were followed over 14 years as part of the NIMH Collaborative Program on the Psychobiology of Depression. During that time, 3.8% died by suicide and 12.6% attempted suicide. Suicide within 12 months of intake to the study was associated with clinical variables, including emotional turmoil plus depression in the index episode, a history of both alcohol and drug use disorders, and meeting the criteria for antisocial personality disorder. Additional predictors included hopelessness, delusions of grandeur, indecisiveness, definite delusions or hallucinations during the index episode, reduced functional role, dissatisfaction with life, or any prior history of serious suicide attempts as of the intake episode. Beyond 1 year after intake, suicide was associated with temperamental factors, including high levels of impulsivity and shyness and low sanguinity scores. Suicide attempters and those who died by suicide shared core characteristics, including previous attempts, impulsivity, substance abuse, and psychic turmoil within a cycling/mixed bipolar disorder.

Kaslow et al. (413) conducted an empirical study of the psychodynamics of suicide among 52 patients hospitalized for a suicide attempt and 47 psychiatrically hospitalized control subjects with no history of suicidal behaviors. Overall, 49% of the subjects had depression, 25% had substance use disorders, and 63% had a cluster B personality disorder. Individuals who had attempted suicide were significantly more likely to report childhood loss combined with adulthood loss. Furthermore, they had more impairment in their object relations and viewed relationships in a more negative manner, showing lower levels of individuation and separation. Although self-directed anger was associated with homicidal ideation, there was little support for the psychodynamic concepts that depression, self-directed anger, or ego functioning would be associated with having made a suicide attempt.

In a group of 438 undergraduate college students who ranged in age from 16 to 65 years, Boudewyn and Liem (734) compared low and high scorers on a chronic self-destructiveness scale that measured behaviors such as chronic gambling or unsafe sexual behaviors that had a potential for later negative consequences. Overall, those scoring high in self-destructiveness

were younger and reported more childhood and adulthood maltreatment, lower self-esteem, greater depression, greater externality, less need for control in interpersonal relationships, and more frequent suicidal and self-injurious thoughts and acts. These findings suggest that other manifestations of self-destructiveness should be assessed in the individual evaluation of the suicidal patient and that childhood and adult maltreatment should be specifically identified and addressed in the treatment planning process.

Together with extensive clinical observations on individual strengths and vulnerabilities as they relate to suicidality (410, 412, 420, 426), research on various psychological dimensions has demonstrated the need to include such features in assessing suicide risk. In particular, personality traits such as aggression, impulsivity, social disengagement and subjective loneliness, hopelessness, anxiety, low self-esteem (and protective narcissism), dependence, ambivalence, and depression may increase risk for suicidal behaviors. Thinking styles such as closed-mindedness or polarized (either-or) thinking may also augment risk. If dilemmas are seen only in black-and-white terms, with fewer perceived options, patients may see no solution to their problems other than suicide. In addition to personality traits and thinking style, an individual's psychological needs, when not met, can cause intense psychological pain, contributing to a suicidal state. Early trauma and loss may thwart the development of healthy coping skills. In addition, individual perceptions of interpersonal supports, particularly subjective perceptions of loneliness, may also contribute to suicide risk. Thus, in weighing the strengths and vulnerabilities of the individual patient and developing and implementing a plan of treatment, it is helpful to assess the patient's past response to stress, vulnerability to life-threatening affects, available external resources, perceived sense of loneliness, fantasies about death, and capacity for reality testing and for tolerating psychological pain.

8. Degree of suicidality

a) Presence, extent, and persistence of suicidal ideation

Suicidal ideation is common, with an estimated annual incidence of 5.6% (2). Kessler et al. (427) examined the lifetime prevalence of suicidal ideation and suicide attempts in a sample of 5,877 individuals age 15–54 years as part of the National Comorbidity Survey. The estimated lifetime prevalences of suicidal ideation, plans, and attempts were 13.5%, 3.9%, and 4.6%, respectively. The cumulative probability of moving from suicidal ideation to an unplanned attempt was 26%. The corresponding cumulative probability for transitioning from suicidal ideation to suicidal plans was 34%, with a 72% cumulative probability for going from a suicide plan to an attempt. About 90% of unplanned attempts and 60% of planned first attempts occurred within 1 year of the onset of suicidal ideation, suggesting a need for aggressive aftercare and attention to potentially modifiable risk factors in individuals with suicidal ideation.

Longitudinal studies also demonstrate an increased risk of eventual suicide in patients with suicidal ideation. Among 6,891 psychiatric outpatients who were followed for up to 20 years, Brown et al. (78) found that patients' scores on clinician-administered measures of current suicidal ideation and depression were most closely associated with eventual suicide. Fawcett et al. (79), using a case-control method to determine time-related predictors of suicide among 954 patients with major affective disorder, examined suicidal ideation as one possible predictor of actual suicide over a 10-year period. They found that the presence of suicidal ideation was associated with an increased risk for suicide on a long-term basis but not within the first year after study entry.

Others have examined the association between eventual suicide and suicidal ideation at its worst using the Scale for Suicide Ideation–Worst (SSI–W) (428). In a group of 3,701 outpatients in which there were 30 suicides, patients who scored in the high-risk category on the SSI–W had a rate of later suicide that was 14 times greater than that of the patients in the low-risk category. After controlling for the effects of other factors, the investigators found that only the SSI–W score, and not the scores on measures of current suicidal ideation or hopelessness,

was associated with future suicide (428). Consistent with the findings of Clark and Fawcett (273), the authors concluded that retrospective report of suicidal ideation at its worst may be a better predictor of suicide than currently reported suicidal ideation.

Intuitively, since suicidal ideas would be expected to precede suicidal intent or suicidal acts, they may serve as a guide for clinicians in identifying and addressing suicide risk. These studies also suggest that past as well as current suicidal ideation is relevant to the assessment process. However, since the vast majority of individuals with suicidal ideation do not die by suicide, additional factors are likely to be modulating suicide risk even in individuals with suicidal ideas.

b) Presence of a suicide plan and availability of a method

As noted earlier, about one-third of individuals with suicidal ideas go on to develop a suicide plan, and about three-quarters of those with a plan eventually make a suicide attempt. Other individuals, however, go on to attempt suicide in an unplanned manner. Thus, the presence of a suicide plan signifies that the risk of a later attempt is increased, but it by no means indicates that an attempt will occur or even the time frame within which an attempt may occur. By the same token, the absence of a suicide plan does not eliminate suicide risk. In general, however, the presence of a specific plan involving an available method is associated with a greater degree of risk for suicide. In addition, availability of methods with relatively high levels of lethality may increase the likelihood that a suicide attempt, either planned or impulsive, will result in suicide.

A number of studies have examined population-based trends in suicide rates as they relate to the availability of specific methods for suicide. Ohberg et al. (735), for example, evaluated trends in suicide rates and availability of methods used for suicide in Finland from 1947 to 1990. For both sexes, the overall suicide rate in Finland rose significantly in that time period, but method-specific rates of suicide varied. For example, the rate of suicide by using the highly lethal pesticide parathion decreased after its availability was restricted, but this decrease was offset by an increased rate of suicide by other methods. Before 1962, most suicides occurred by hanging or drowning, but after 1963, there was a rapid increase in the use of firearms. Coincident with increases in the availability of antidepressants and neuroleptics, the rates of suicide by overdose of these medications increased. There was a high number of overdoses of tricyclic antidepressants, which accounted for most of the deaths attributed to antidepressants. On the other hand, the number of overdose deaths attributed to nontricyclic antidepressants decreased, despite increased availability, and the number of overdose deaths attributed to barbiturates remained stable despite reduction in their availability.

Gunnell et al. (436) investigated method-specific trends in suicide between 1950 and 1975 in England and Wales. In the 1950s and early 1960s, domestic gas poisoning was the most frequently used method of suicide among men and women, accounting for one-half of all suicides. Changes in domestic gas supply and manufacture resulted in a reduction in its carbon monoxide content and thus lethality, and overall suicide rates declined in men and women of all ages. In women and younger men (younger than age 55 years), the effects of these reductions on overall suicide rates were partially offset by a rise in the rates of drug overdose deaths, but there were no immediate increases in the use of other suicide methods. In older men, a reduction in the rate of suicide by gassing was accompanied by only a slight increase in the rate of suicide by overdose as well as reductions in rates of suicide by using all other methods.

Marzuk et al. (437) investigated the relationship between the availability of lethal methods of injury and suicide rates by prospectively classifying lethal methods according to their accessibility in the five counties of New York City over a 4-year period and then comparing the age- and gender-adjusted method-specific suicide rates of the counties. During the study period, there were a total of 2,820 suicides, a rate of 9.81 per 100,000 persons. The study found marked differences in overall crude suicide rates among the five counties, which ranged from 15.27 per 100,000 persons in Manhattan to 5.58 per 100,000 persons in Staten Island. The counties had similar suicide rates involving methods that were equally accessible to all persons in each county

(e.g., hanging, laceration, suffocation, and burns) as well as methods that were accessible to a smaller but similar proportion of the population in each county (e.g., firearms and drowning in waterways). Virtually all of the differences in overall suicide risk among the counties were explained by methods that were differentially available, such as fall from height, overdose of prescription drugs, and carbon monoxide poisoning (explained by access to private parking). The availability of a greater variety of alternative lethal methods in some counties did not suppress the rates of use of other methods, and a relative lack of the availability of a specific method did not result in a comparative increase in the rates of use of alternative methods that were available, as the substitution hypothesis would have predicted. Thus, restriction of the availability of a method may reduce its use for suicide, but other methods may tend to be used instead. At the same time, the accessibility to and lethality of particular methods of suicide may have definite effects on the overall suicide rate.

In the United States, firearms constitute the most common method for suicide (736, 737). Fox et al. (738) used mortality data for 1979–1994 from the Wisconsin Center for Health Statistics and the U.S. Census Bureau population estimates for Wisconsin to describe trends for firearm-related suicides in that state. During that period, there were an average of 588 suicides annually, with firearms eclipsing all other methods combined as the most common method of suicide in the 1980s. Between 1981 and 1992, the proportion of firearm suicides increased from 48% to 57%. While the overall suicide rate remained unchanged over the period, the firearm suicide rate increased 17% in all sex, race, and age categories. Among males, the firearm-related suicide rate rose by 13% during the study period, while the rate of suicide by all other methods combined fell 12%. In comparison, among females, the firearm-related suicide rate rose 20%, and the rate of suicide by all other methods fell 26%.

Kaplan and Geling (434) investigated the sociodemographic and geographic patterns of firearm suicides in the United States using mortality data from the National Center for Health Statistics Mortality detail files and death certificate files reported by each state from 1989 to 1993. During this time period, 59.2% of the 139,566 suicides were by firearms. Married persons had the lowest rate of any form of suicide across all race, sex, and age groups. The adjusted odds of using firearms increased with age among men and decreased with age among women. Widowed men and married women had the highest odds of using firearms, and the odds of using a firearm for suicide were also high among those without college education, those who had lived in nonmetropolitan areas, and those who had lived in the East South Central and West South Central geographic divisions. Rates of nonfirearm suicides were higher than firearm suicides everywhere but in the regions of the South. Thus, the likelihood of firearm suicide varied significantly across sociodemographic and geographic subgroups of the U.S. population and paralleled variations in gun ownership, suggesting that regional cultural factors may account for differential rates in suicidal behavior involving firearms.

In addition to population-based data on firearm availability and suicide risk, some data also suggest an effect at an individual level. Brent et al. (438) performed a case-control study to determine the relationship between the presence of guns in the home, the type of gun, the method of storage, and the risk of suicide among adolescents. Forty-seven adolescents from the community who died by suicide were compared with two control groups from a psychiatric hospital: 47 patients who attempted suicide but survived and 47 patients who had never attempted suicide. The study found that guns were twice as likely to be found in the homes of those who died by suicide as in the homes of the suicide attempters or psychiatric control subjects. There was no significant difference in association with suicide between handguns and long guns, and there was no difference in the methods of storage of firearms among the groups. The authors concluded that the availability of guns in the home, independent of the type of firearm or storage method, appears to increase the risk for suicide, at least among adolescents.

In summary, the presence of a suicide plan and the availability of a method for suicide increase risk and are important issues to address as part of the suicide assessment. Since firearm-

related suicides account for a significant fraction of suicides in the United States, the presence and availability of firearms are also an important line of inquiry in a suicide risk assessment. A debate remains over whether a reduction in the availability of a particular method of suicide reduces overall risk, although most evidence indicates that restrictions on the availability of particular types of popular methods result in a lower overall suicide rate. At the individual level, reducing access to specific suicide methods may also be indicated. See Section II.C.2, "Elicit the Presence or Absence of a Suicide Plan," for additional discussion of inquiries, removal, and documentation issues related to firearms and the suicidal patient.

c) Lethality and intent of self-destructive behavior

In addition to being increased by the presence of suicidal ideation, a suicide plan, or an available suicide method, suicide risk is also influenced by the patient's subjective expectation and desire to die as a result of a self-inflicted injury. This factor has generally been termed suicidal intent, although the patient's subjective expectation may or may not correspond to the lethality of an attempt made by using a given method. Other facets of a suicide plan or attempt that are often considered when estimating suicidal intent include the severity and potential lethality of the suicide attempt or aborted suicide attempt, the patient's degree of premeditation, whether precautions were taken to avoid intervention or discovery, and whether the patient's intentions were communicated to others (263, 433, 440).

Several studies have longitudinally assessed the influence of suicidal intent on later suicide risk. In a group of 500 patients who had completed a scale measuring suicidal intent after an episode of self-injury, Pierce (441) found that the seven individuals who had died by suicide by the time of a 5-year follow-up tended to have high suicidal intent scores at the time of their initial self-injury. In addition, individuals with increasing levels of suicidal intent with repeated self-injury appeared to be at greater risk for further repetition of self-injury (739). Suokas et al. (271) also conducted a longitudinal assessment of the effect of suicidal intent on suicide risk. They found that 68 (6.7%) of 1,018 deliberate self-poisoning patients had died by suicide by 14-year follow-up. Risk factors for suicide included being male, having previous psychiatric treatment or suicide attempts, having a somatic disease, and having a genuine intent to die at the time of the index self-poisoning.

Thus, for any patient with suicidal ideation, it is important to determine suicidal intent as part of the assessment process. In addition, for any patient who has made a prior suicide attempt, the level of intent at the time of the previous attempt should be determined.

9. Weighting of risk factors in suicide prediction

As noted previously, it is impossible to accurately predict suicide. Nevertheless, given the large number of risk factors and protective factors that can affect the likelihood of suicide, a number of statistical models have been developed to attempt to pinpoint which patients may be at greatest risk. In a longitudinal study by Pokorny (160) that followed 4,800 subjects (4,691 males and 109 females) over a 5-year period, stepwise discriminant analysis was used to select a weighted combination of predictive variables from the identified high-risk characteristics, i.e., being a white male; being single; having a diagnosis of affective disorder, schizophrenia, or alcoholism; having made a previous suicide attempt; or having personality disorder-related traits such as manipulativeness and hostility. This method was able to correctly identify 30 of the 67 subjects who died by suicide but also falsely predicted suicide in 773 individuals. Thus, while it may be possible to identify a high-risk group of patients who warrant more detailed clinical screening, it may not be possible to identify the particular individuals at greatest risk.

Goldstein et al. (740) also used a statistical model that incorporated multiple risk factors for suicide and applied it in a group of 1,906 patients with affective disorders who were admitted to a tertiary care hospital and were followed longitudinally. The identified risk factors included the number of prior suicide attempts, the presence of suicidal ideation on admission, gender,

outcome at discharge, and a diagnosis of either bipolar affective disorder (manic or mixed type) or, in individuals with a family history of mania, unipolar depressive disorder. The full statistical model, however, was unable to identify any of the patients who died by suicide, highlighting the difficulty of estimating suicide risk with such methods.

In general, statistical models may be valuable in the epidemiological and research arenas by identifying factors that distinguish high-risk populations of patients. They can also suggest clinically important risk factors that, if identified, are potentially amenable to treatment. However, given the low base rates of suicide in the population, accurate prediction of suicide remains impossible, regardless of the complexity of the statistical model used. Consequently, the psychiatric assessment, in combination with clinical judgment, is still the best tool for assessing suicide risk. In addition, intervention must be based not on the simple presence of risk factors as identified by statistical models but on the interaction of those factors with the individual patient's personal and clinical manifestations and the clinician's assessment of the patient's risk at that particular point in time.

B. PSYCHIATRIC ASSESSMENT TECHNIQUES

1. Rating scales

A wide variety of self-report and clinician-administered scales are available that measure various aspects of suicidal thoughts and behaviors as well as symptoms associated with suicide. These scales are reliable and have adequate concurrent validity, and they may have application as research tools. However, their usefulness and generalizability in clinical practice are questionable. Most of the scales have been tested in nonrepresentative samples composed of college students or psychiatric patients and have not been adequately tested in important subpopulations of patients, such as elderly patients, minority group patients, and patients in common clinical settings, including emergency departments or primary care practices. Few of these scales have been tested in prospective studies, and those that have been tested have shown very low positive predictive validity and high rates of false positive findings. As a result, for the practicing clinician, these rating scales are primarily of value in learning to develop a thorough line of questioning about suicide (see Section II.C.4, "Understand the Relevance and Limitations of Suicide Assessment Scales"). It is for this reason that the specific rating scales will be reviewed briefly here. In addition, information about the scales may be helpful in interpreting the findings of other studies discussed in this guideline.

The Scale for Suicide Ideation (8) is a 19-item, clinician-administered scale that takes approximately 10 minutes to administer and was designed to quantify the intensity of current and conscious suicidal intent by assessing the extent and characteristics of suicidal thoughts; the patient's attitude toward suicidal thoughts; the wish to die; motivations, deterrents, and plans for a suicide attempt; and feelings of control and courage about a suicide attempt. Although standardized for use with adult psychiatric patients, the Scale for Suicide Ideation has been used in a variety of settings and has high levels of internal consistency and interrater reliability. Scores on the Scale for Suicide Ideation have been correlated with the self-harm item of the Beck Depression Inventory and have been shown to discriminate between depressed outpatients and patients hospitalized for suicidal ideation, despite similar levels of depression in the two groups (8), suggesting that the scale measures something above and beyond depression alone. Although the Scale for Suicide Ideation is one of the few instruments with a demonstrated positive predictive validity for suicide, its positive predictive value is only 3%, and it has a high rate of false positive findings (78). A number of modified versions of the Scale for Suicide Ideation exist, including a 21-item self-report version (741) and a measure of suicidal ideation at its worst, the SSI–W, which is also a 19-item, clinician-administered instrument (428).

The Suicide Behavior Questionnaire (SBQ) is a self-report measure of suicidal thoughts and behaviors that is significantly correlated with the Scale for Suicide Ideation (10). The original

four-item version has adequate internal consistency, high test-retest reliability, and takes less than 5 minutes to complete. A 14-item revised version (SBQ-14) is a more comprehensive measure of suicidal attempts, ideation, and acts and includes items on suicidal ideation, future suicidal ideation, past suicide threats, future suicide attempts, and the likelihood of dying by suicide in the future. Although the SBQ has high internal reliability and an ability to differentiate between clinical and nonclinical samples (10), the positive predictive validity of the SBQ is not known.

The Suicide Intent Scale (9) is a 20-item clinician-administered scale that has high internal and interrater reliabilities and that quantifies a patient's perceptions and verbal and nonverbal behaviors before and during a recent suicide attempt. It includes questions about circumstances surrounding an attempt, the method and setting of the attempt, the patient's perception of the lethality of the method, expectations about the probability of rescue, premeditation of the attempt, and the purpose of the attempt. Although scores on the Suicide Intent Scale are associated with the lethality of the method, the scale is unable to distinguish between those who attempted suicide and those who aborted their suicide attempts, and it does not predict death by suicide (10).

The Reasons for Living Inventory (407) is a self-report instrument that takes approximately 10 minutes to administer and uses 48 Likert-type scale items to assess beliefs and expectations that would keep one from acting on suicidal ideas. This scale has high internal validity and reliability and moderately high test-retest reliability. It is moderately correlated with the Scale for Suicide Ideation and the Beck Hopelessness Scale and is able to differentiate between inpatients and control subjects as well as between suicide attempters and those with suicidal ideation alone (10).

A number of other scales have been devised to assess suicidality. Among them are the Risk-Rescue Rating, which assesses lethality of a suicide attempt and the level of suicidal intent (433), and the Suicide Assessment Scale, which assesses suicidality over time in the five areas of affect, bodily state, control and coping, emotional reactivity, and suicidal thoughts and behaviors (742). Other more general rating scales include items that have also been used in assessing suicide risk. For example, the Thematic Apperception Test has been used to indicate dichotomous thinking as a risk factor for suicide (743), and the General Health Questionnaire includes a subset of four items that can be used to assess suicidal ideation (744). Based on the theory that psychological pain (or psychache) may be related to suicide, Shneidman (745) developed a psychological pain assessment scale that uses pictures to assess the patient's unmet psychological needs, providing a measure of the introspective experience of negative emotions that may relate to suicidality. By using the scale to explore a patient's perception of psychological pain, clinicians may be able to identify the patient's coping mechanisms and ego strengths. Use of this scale may also help the clinician assess the patient's mental anguish and address the psychological needs that the patient views as important and unmet.

In addition, because depression and hopelessness are risk factors for suicide, corresponding rating scales are often used as indicators of suicide risk. The Beck Hopelessness Scale is a self-report measure consisting of 20 true-false statements that assess positive and negative beliefs about the future that are present during the week before administration (712). The Beck Hopelessness Scale demonstrates high internal validity, adequate test-retest reliability, and moderate to high correlations with clinicians' rating of hopelessness (10). In addition, it is one of the only scales that has demonstrated positive predictive validity (10). In a 10-year prospective study of hospitalized patients with suicidal ideation, the Beck Hopelessness Scale was able to distinguish those who died by suicide and those who did not (222). Nonetheless, its positive predictive value is only 1% (78, 713), and its rate of false positive findings is high (221).

The most frequently used depression scales for suicide assessment are the Hamilton Depression Rating Scale and the Beck Depression Inventory. As measured by these scales, higher levels of depression have been associated with suicide in long-term studies of psychiatric outpatients (78, 221). In addition to being associated with the overall Beck Depression Inventory score, suicide has also been associated with specific inventory items. For example, the Beck Depression Inventory item that measures pessimism has been shown to differentiate between patients

who die by suicide and those who do not (222), and the suicide item, which has possible responses on a 4-point scale ranging from "no thoughts of killing myself" to "would kill myself if I had the chance," is also associated with increased suicide risk (10). The corresponding suicide item in the Hamilton Depression Rating Scale measures suicidal behavior on a scale of 0 (absent) to 4 (attempts suicide), has high interrater reliability, and is similarly associated with increased suicide risk (10).

Thus, there are a variety of rating scales that are useful for research purposes and that may be helpful to clinicians in tracking clinical symptoms over time and in developing a thorough line of questioning about suicide and suicidal behaviors. At the same time, because of their high rates of false positive and false negative findings and their low positive predictive values, these rating scales cannot be recommended for use in clinical practice in estimating suicide risk.

2. Biological markers

Multiple studies, reviewed elsewhere (366, 746, 747), have suggested that suicidal behaviors may be associated with alterations in serotonergic function. As a result, a number of biological markers of serotonergic function, including cerebrospinal fluid (CSF) levels of monoamine metabolites such as 5-hydroxyindoleacetic acid (5-HIAA), have been suggested for use in assessing suicide risk. Traskman et al. (748) compared suicide attempters (N=30) to normal control subjects (N=45) and found that the attempters, particularly those who had made more violent suicide attempts, had significantly lower CSF 5-HIAA levels that were independent of psychiatric diagnosis. Subsequent longitudinal follow-up of 129 individuals after a suicide attempt showed that 20% of those with CSF 5-HIAA levels below the median had died by suicide within 1 year (748). Serotonergic function, as measured by the response of prolactin to the specific serotonin releaser and uptake inhibitor *d*-fenfluramine, was also found to be blunted in medication-free patients with DSM-IV schizophrenia who had attempted suicide, compared with nonattempters and healthy control subjects (749).

Hyperactivity of the hypothalamic-pituitary-adrenal (HPA) axis has been associated with suicide since 1965, when Bunney and Fawcett (750) reported three suicides occurring in patients with very high levels of urine 17-hydroxycorticosteroids. Subsequent literature has shown evidence of hypertrophic adrenal glands (751–753) and elevated levels of brain corticotropin-releasing hormone (754, 755) in individuals who died by suicide. The dexamethasone test (DST) has also been used to study whether HPA dysfunction is associated with a type of depressive illness that is likely to end in suicide. In 234 inpatients with unipolar depression, 96 had abnormal DST results, and of these, four died by suicide, in contrast to one suicide death in the group with normal DST results (756). In a subsequent longitudinal study of hospitalized patients with either major depressive disorder or the depressed type of schizoaffective disorder, survival analyses in the 32 patients with abnormal DST results showed an estimated risk for eventual suicide of 26.8%, in contrast to an estimated risk of 2.9% in the 46 patients with normal DST results (757).

On the basis of a series of population studies (758) and a study by Ellison and Morrison (759) showing associations between low cholesterol levels and increased rates of suicide and violent death, cholesterol levels have also been suggested as a putative biological marker for suicidal behaviors. Fawcett et al. (760) reported decreased mean levels of cholesterol in a sample of 47 inpatients who died by suicide. However, Tsai et al. (82) did not find decreased cholesterol levels in a chart-review study of 43 bipolar disorder patients who died by suicide. A case-control study found significantly lower mean cholesterol levels in a group of 100 psychiatric inpatients who had attempted suicide, compared with a matched group of patients hospitalized for physical illness (761). No correlation existed between cholesterol levels and ratings of depression or suicidal intent, and a significant negative correlation between cholesterol levels and self-reported levels of impulsivity was seen across the groups. In a group of 783 outpatients consecutively admitted to a lithium clinic, Bocchetta et al. (762) found a significantly higher likelihood of a history of

violent suicide attempts and of suicide in first-degree relatives among men in the lowest quartile of cholesterol levels, compared with men with higher cholesterol levels. Alvarez (763) also reported an association of violent, but not nonviolent, suicide attempts with low cholesterol levels. However, the clinical importance of these findings is unclear, since the use of statin drugs to reduce cholesterol does not appear to be associated with any increase in violence, aggressiveness, unhappiness, accidents, or suicide (764).

Overall, a great deal of evidence suggests that specific biological markers may relate to suicidal behaviors, perhaps through links to impulsivity or aggression. Nevertheless, while intriguing and potentially useful in further understanding the biological underpinnings of suicidal behaviors, none of these putative biological markers are sensitive or specific enough to recommend their use in routine screening or in clinical practice.

C. SPECIAL ISSUES

1. Homicide-suicide

Homicide-suicide, which has often been referred to in the literature as murder-suicide, is relatively uncommon yet essential to keep in mind when assessing individuals at risk for suicidal ideation or behaviors. Suicide is an act of violence toward one's self that may also be an expression of anger or other-directed violence toward another person. After reviewing the literature on risk factors for suicide and for violence, Plutchik (765) proposed a theoretical model that numerically weights a series of variables in order to systematically relate suicide risk to the risk of violence. Of 37 variables noted to be risk factors for violence, 23 were also risk factors for suicide. Another 17 variables were identified as protective factors that decreased the risks of both suicide and violence. Thus, some correlates of suicidal behavior are also associated with violence, an overlap that may contribute to homicide-suicides.

Epidemiologically, homicide-suicide occupies a distinct but overlapping domain with suicide, domestic homicide, and mass murder (20). Although definitions of homicide-suicide vary (20, 766, 767), in general, the two acts occur in close temporal proximity, often with the suicide occurring within seconds or minutes of the homicide. The annual incidence in the United States is difficult to determine but has been estimated to be 0.2–0.9 per 100,000 persons, without significant changes over the past several decades (19, 20). It is likely that about 1.5% of all suicides and 5% of all homicides in the United States occur in the context of homicide-suicide. Homicide-suicide between spouses or lovers represents the majority of homicide-suicides in the United States (19, 766–768), and shooting is the method used in almost all cases (768).

The principal perpetrators of homicide-suicide are young men with intense sexual jealousy or despairing elderly men with ailing spouses (19, 767, 768). In the latter group, associated symptoms of depression are often compounded by financial stressors, resulting in despair (768). Histories of violence and domestic abuse are common (19, 768), as is substance use (19, 768, 769), although perpetrators tend to be less deviant and have less previous criminal involvement than the typical homicide perpetrator (768). Ninety percent of all homicide-suicide incidents involve only one victim, and the principal victims are female sexual partners or consanguineous relatives, usually children (20, 768). Although infanticide is an extremely rare phenomenon (766), mothers who develop postpartum psychosis need to be assessed for suicidal and homicidal impulses directed toward their newborn or other children (27). The risk is especially high in the first postnatal year, when the suicide risk is increased 70-fold (27). Under all of these circumstances, the common theme is the perpetrator's overvalued attachment to a relationship, which leads him or her to destroy the relationship if it is threatened by real or imagined dissolution.

The management of patients assessed to have both suicidal and homicidal impulses should parallel that for either type of risk alone. In particular, in addition to identifying risk factors

and protective factors, careful attention should be given to previous hospitalizations, psychosocial stressors, past and current interpersonal relationships, and comorbid factors such as the use of alcohol or other substances. It is also crucial to inquire about firearms and to address the issue with the patient and others if firearms are accessible (see Sections II.E.8.b, "Presence of a Suicide Plan and Availability of a Method," and V.C, "Communication With Significant Others"). Although the legal duty for psychiatrists to warn and protect endangered third parties varies in each state, clinical interventions should endeavor to protect endangered third parties whenever possible.

As for psychopharmacologic management, questions have been raised about the effects of fluoxetine and other serotonin reuptake inhibitor (SRI) antidepressants on violence and suicide. Tardiff et al. (770) analyzed data from the New York City medical examiner's office on all 127 homicide-suicides that took place in that city from 1990 to 1998. Only three of the perpetrators (2.4%) were taking antidepressants. Given the fact that SRIs were widely prescribed in the 1990s, this finding provides no support for the view that SRI treatment is associated with violence or suicide.

In summary, data on homicide-suicide are limited but suggest that patients who present with a recent suicide attempt, have a suicide plan, or voice suicidal ideation should be evaluated for their risk of violent or homicidal behavior. Similarly, patients who present with recent violent behavior or homicidal ideation should be evaluated for suicidal behavior. Clinicians should also assess whether obsessive or delusional jealousy or paranoia is present, especially if such symptoms are comorbid with depression in a patient with a history of domestic abuse. In addition, in older individuals, clinicians should assess for signs of depression or dependency in a spouse whose partner's medical condition is deteriorating. Although less common among homicide-suicide perpetrators, mothers with postpartum psychosis or depression also require careful assessment. Key interventions include treating the mental illness, removing firearms and other lethal methods, and providing assistance with psychosocial supports and social services.

2. Suicide pacts

Suicide pacts, defined as a mutual arrangement between two people to kill themselves at the same time, account for a very small percentage of suicides (0.3%–2.4%, depending on the study) (771–773). As with homicide-suicides, the majority of suicide pact deaths occur in married couples. Social isolation is common, and rates of psychiatric illness, particularly depression, are high in one or both decedents (771–773). Other risk factors also parallel risks for suicide, in general, suggesting that the best approach to detection of suicide pacts is a thorough suicide assessment with attention to psychiatric and psychosocial factors.

3. Deliberate self-harm

Deliberate self-harm is a phenomenon related to but distinct from attempted suicide. Although deliberate self-harm behavior can encompass suicide attempts, it also includes self-mutilation, such as burning, cutting, and hair pulling, that is not associated with fatal intentions (520). Three categories of self-mutilation have been described. Major self-mutilation is infrequent and is usually associated with psychosis or intoxication. Stereotypic self-mutilation is repetitive and driven by a biologic imperative to harm the self. Superficial to moderate self-mutilators use self-harming behaviors as a way to relieve tension, release anger, regain self-control, escape from misery, or terminate a state of depersonalization (520). Extreme forms of self-harm are very rare and often accompany religious or sexual delusions in patients with prominent psychosis or depression (520). Individuals with a history of deliberate and particularly repetitive self-harm also show significantly greater degrees of impulsiveness (774) and are likely to have a diagnosis of borderline personality disorder (521). In addition, repetitive self-mutilators who become depressed and demoralized over their inability to stop the behavior may be at increased risk for suicide attempts (520).

From a clinical standpoint, it is essential to recognize that a past or current history of nonlethal self-harming behaviors does not preclude development of suicidal ideation or plans or preclude suicide attempts with serious intent and lethality. For example, Soloff et al. (521) examined aspects of self-mutilation and suicidal behavior in 108 patients with borderline personality disorder and found evidence of self-mutilation in 63% and suicide attempts in 75.7% of the patients. Compared to patients without self-mutilation, those with self-mutilation were significantly younger and had more serious suicidal ideation, more recent suicide attempts, and more symptoms, including psychosis and depersonalization.

Stanley et al. (251) compared 30 suicide attempters with cluster B personality disorders and a history of self-mutilation to 23 matched suicide attempters with cluster B personality disorders but no prior self-mutilation. While the two groups did not differ in the objective lethality of their suicide attempts, those with a history of self-mutilation perceived their suicide attempts as less lethal, with a greater likelihood of rescue and with less certainty of death. Suicide attempters with a history of self-mutilation had significantly higher levels of other symptoms, such as depression, hopelessness, aggression, anxiety, and impulsivity, that are associated with an increased risk of suicide. Furthermore, self-mutilators had higher and more persistent levels of suicidal ideation than those without a history of self-mutilation. These findings highlight the importance of distinguishing self-mutilatory behaviors from other, more lethal forms of deliberate self-harm. In addition, they underscore the need for a thorough suicide assessment and an appreciation of the multiple determinants of suicide risk in individuals with histories of repetitive deliberate self-harm.

D. SOMATIC THERAPIES

Evidence for reduction of suicidal risk with specific forms of psychiatric treatment is very limited. The most secure research support pertains to psychopharmacological treatments for major affective and psychotic disorders, but even this evidence should be considered preliminary. Moreover, support for reduced suicide risk with psychopharmacological treatment is limited to lithium in various forms of recurrent major affective disorders and clozapine in chronic psychotic illnesses. Support for reduction of suicide risk with antidepressants and mood-stabilizing anticonvulsants is very limited and is at best only suggestive and inconclusive.

1. Pharmacotherapy

a) Antidepressants

A growing number of antidepressant drugs have been shown to be clinically effective in the treatment of acute, recurrent, and chronic depressive illness and a number of anxiety disorders (526). Moreover, nontricyclic, non-SRI antidepressants are relatively safe and present virtually negligible risks of lethality on overdose (526). Since suicidal behavior is strongly associated with depressive illnesses and some forms of anxiety, treatment with antidepressants should plausibly be associated with reduced suicide rates. However, the available evidence remains surprisingly inconclusive that any type of antidepressant or antianxiety treatment is associated with lowering of risk for suicidal behavior (69, 526, 528–532, 563).

Specific types of antidepressants vary greatly in their potential lethality on overdose and relative safety for use by potentially suicidal patients. All tricyclic antidepressants and monoamine oxidase inhibitors (MAOIs) are potentially lethal on acute overdose (526, 556, 557), contributing to their currently limited clinical use, particularly for potentially suicidal patients. Most newer antidepressants, including bupropion, mirtazapine, and nefazodone, and the SRIs have very low lethality in acute overdose (526). The finding of Kapur et al. (557) that tricyclic antidepressants were associated with greater rates of suicide than the nontricyclic antidepressants fluoxetine and

trazodone was likely due to the differential toxicity of these agents in overdose, since rates of suicide attempts among patients taking either of the two types of medication were comparable. With the preferential use of nontricyclic, non-MAOI antidepressants by primary care physicians as well as psychiatrists (526), antidepressant overdoses are less often associated with suicide than they were formerly (775, 776), although methods of suicide also may be shifting from overdoses to more lethal alternatives (735, 777).

Coincident with wide clinical acceptance of the safer, nontricyclic, non-MAOI antidepressants since the late 1980s, suicide rates in several countries, regions, or subpopulations have fallen appreciably (69, 531, 532, 549, 550), although international average suicide rates have remained relatively flat for many years, and rates have risen in some subgroups (69, 529, 775, 778, 779). Even stable suicide rates, however, may suggest some improvement in suicide prevention in view of the epidemiological evidence of rising incidence (or greater recognition and diagnosis) of major affective illnesses over the past several decades (694, 780, 781). Since multiple studies have suggested that many depressed individuals do not receive psychiatric intervention or effective antidepressant treatment prior to suicide (206, 267, 578, 782–784), further decreases in suicide rates might occur as a result of improved recognition and treatment of depression.

Longitudinal follow-up data also suggest that long-term antidepressant treatment is associated with a decreased risk of suicide. Angst et al. (74) followed 406 patients with affective disorders for 34 to 38 years after an index psychiatric hospitalization and found that standardized mortality rates for suicide were significantly lower in patients with unipolar depressive disorder as well as in patients with bipolar disorder during long-term treatment with antidepressants alone, with a neuroleptic, or with lithium in combination with antidepressants and/or neuroleptics. This lowering of suicide mortality was particularly striking in light of the fact that the treated patients were more severely ill than the patients who did not receive long-term medication therapy.

Data from one double-blind placebo-controlled study (785) suggested that suicide attempts may also be reduced by long-term antidepressant treatment. In a 1-year trial in nondepressed individuals with repeated suicide attempts, paroxetine treatment was associated with a decreased likelihood of an additional suicide attempt. Although many of the patients in the study met the criteria for a cluster B personality disorder, paroxetine was significantly more effective in those who met fewer of those criteria.

More specific information is available from therapeutic trials of antidepressants in depressed subjects, including data on suicides and serious suicide attempts. These findings were recently evaluated in a meta-analysis (533, 562) based on 13 pertinent reports that appeared between 1974 and 2000 and had data suitable for analysis (534–546). A majority of the studies (eight of 13) involved double-blind designs and random assignment to treatment with a then-experimental or standard antidepressant, to placebo treatment, or to an untreated comparison condition in a total of 37 separate treatment arms; several of the studies included pooled data from multiple trials. A total of 258,547 patient-subjects were included, with a total of 189,817 person-years of risk exposure encompassing short-term efficacy trials as well as reasonably long-term treatment trials. Based on these reports, pooled rates of suicide or suicide attempts by type of treatment suggested that antidepressant treatment is associated with a substantial, approximately fourfold lowering of risk for suicidal behaviors (533). However, owing mainly to the large variance in outcomes between studies, none of the effects of antidepressants in reducing rates of suicidal behaviors reached statistical significance. When comparisons were made among specific types of antidepressants, there was a substantial difference between tricyclic and SRI antidepressants, suggesting the possible superiority of tricyclics, but this effect also failed to reach statistical significance.

Using data from studies in the FDA database of controlled clinical trials for antidepressant treatment of depressed patients, Khan et al. (548) used meta-analysis to compare rates of suicide in patients treated with SRI antidepressants, non-SRI antidepressants, or placebo and found no significant differences across treatment groups. This result is consistent with the finding from many comparisons and meta-analyses that SRIs and other newer antidepressants have

usually proved to be effective in placebo-controlled trials and seemed indistinguishable from tricyclic antidepressants in efficacy based on measures other than suicidal behaviors (526, 786).

After publication of several case reports suggesting that SRI antidepressants might be associated with increased risks of aggressive or impulsive acts, including suicide (551–553, 787), a number of investigators retrospectively analyzed clinical trial data to determine whether rates of suicide and suicidal behaviors are increased with SRI treatment (533, 537, 548, 554, 555, 788). These studies did not show evidence that suicide or suicidal behaviors are increased by treatment with specific types of antidepressants. Nonetheless, the safe and effective use of antidepressant treatment for an increasingly wide range of psychiatric disorders should include due regard to early adverse reactions to any antidepressant. These reactions may include increased anxiety, restless agitation, disturbed sleep, and mixed or psychotic bipolar episodes—all of which represent heightened subjective distress in already disturbed patients that might increase the risk of impulsive or aggressive behaviors in some vulnerable individuals. At the same time, these medications are prescribed in order to treat disorders that may have anxiety, agitation, and suicidality as part of the illness course, making it difficult to distinguish the etiology of symptoms that emerge in the course of treatment.

The evidence supporting an expected lowering of the risk for suicidal behavior during antidepressant treatment is limited to findings for patients with a diagnosis of major depression and is, at best, only suggestive. At the same time, existing studies in the literature are limited by the short-term nature of many trials, the widely varying rates of suicide and suicidal acts across trials, inclusion of some patients with probably unrepresentatively high pretreatment suicide risk, and, in other studies, efforts to screen out patients deemed to be at increased suicide risk. Nonetheless, from a clinical perspective, the strong association between clinical depression and suicide and the availability of reasonably effective and very safe antidepressants support the use of an antidepressant in an adequate dose and for an adequate duration as part of a comprehensive program of care for potentially suicidal patients, including long-term use in patients with recurrent forms of depressive or severe anxiety disorders.

b) Lithium

On the basis of present knowledge about pharmacological interventions and risk of suicidal behaviors, prophylactic treatment with lithium salts of patients with recurrent major affective disorders is supported by the strongest available evidence of major reductions in suicide risk of any currently employed psychiatric treatment (528, 559–563, 565, 789). In contrast to antidepressants, and similar to clozapine for schizophrenia, lithium typically is used in relatively structured settings, including specialized programs for affective disorders, lithium clinics, and prolonged maintenance therapy. This practice pattern may itself contribute to the reduction of suicide risk as a result of close, medically supervised monitoring of long-term treatment. Several decades of clinical and research experience with long-term maintenance treatment in recurrent major affective disorders encouraged the development of controlled and naturalistic studies with large numbers of patients given therapeutic dosages of lithium for several years. Studies reporting on the relationship of lithium treatment and suicide in patients with bipolar disorder and other major affective disorders have consistently found much lower rates of suicide and suicide attempts during lithium maintenance treatment than without it (562, 563, 565, 789).

A recent meta-analysis of studies of suicide rates with and without long-term lithium maintenance treatment (563) updated other reviews of this topic (314, 315, 528, 558, 560, 562, 564, 565, 700, 790, 791) and found 34 reports for the period from 1970 through 2002 by computerized and other literature searching (76, 534, 559, 565–595). These studies included 67 treatment arms or conditions (42 with and 25 without lithium treatment). The total number of patients was 16,221 (corrected for appearance of some subjects in both treatment conditions), and treatment lasted an average of 3.36 years with lithium therapy (N=15,323 subjects, for 51,485 person-years of risk-exposure) and 5.88 years without lithium maintenance treatment

(N=2,168, for 12,748 person-years of exposure), with an overall time at risk (weighted by the number of subjects per study) of 3.76 years.

Meta-analysis yielded an overall estimated rate for all suicidal acts (including suicide attempts) from all identified studies of 3.10% per year without lithium treatment, compared to 0.21% per year with lithium treatment, a 14.8-fold (93.2%) reduction that was highly statistically significant. Moreover, the finding of lower rates of suicide and suicide attempts was consistently seen in all 25 sets of observations except one, an early study with a small sample size and relatively short time of exposure to lithium treatment in which no suicidal acts were observed with or without lithium treatment (566).

For suicides considered separately, pooled rates were 0.942% per year without lithium treatment, compared to 0.174% per year with lithium treatment. The corresponding figures for suicide attempts considered separately were 4.65% per year and 0.312% per year, respectively. Thus, long-term lithium treatment was associated with a 5.43-fold reduction in the risk of suicide and a 14.9-fold reduction in the risk of suicide attempts (563).

The apparent sparing of risk of suicide and suicide attempts was very similar in patients with a diagnosis of bipolar disorder and in those with other recurrent major affective disorders, although patients with unipolar depressive disorder were evaluated separately in only two relatively small studies involving a total of 121 patients that found a reduction in risk of suicidal acts from 1.33% per year to nil (563, 575). In addition, a comparison of subjects with bipolar I disorder (N=263) and those with bipolar II disorder (N=153) found a somewhat greater sparing of suicidal risk in the patients with bipolar II disorder (from 1.70% to 0.305% per year, compared to a reduction from 2.73% to 0.898% per year in bipolar I disorder patients) (563).

Despite these striking reductions in risk, it is also important to note that lithium maintenance treatment does not provide complete protection against suicide. The overall rate of suicide during lithium treatment was 0.174% per year, which was much lower than the untreated risk of 0.942% per year but was still 10.5 times higher than the average international rate of 0.0166% per year in the general population (700, 792). In contrast, the rate of suicide attempts during lithium treatment was very close to the estimated risk for the general population, and the total pooled rate of all suicidal acts with lithium treatment, remarkably, was 33% lower than the estimated general population risk. This striking finding may be plausible in that much of the risk of suicidal behavior in the general population represents untreated affective illness and because suicide attempts are far more common than deaths by suicide. In addition, these observations may suggest a relatively greater effect of lithium treatment on suicide attempts than on suicide, although the variability in relationship to general population risks may also reflect variance in the samples available for the analysis of rates of suicide and suicide attempts.

These studies have several notable limitations, including a potential lack of control over random assignment and retention of subjects in some treatment trials, inclusion of some patients with probably unrepresentatively high pretreatment suicide risk, and the presence in several trials of potential effects of treatment discontinuation (565), which can contribute to an excess of early recurrence of affective illness (315, 791, 793, 794), with sharply increased suicide risk (315, 700). However, there was no evidence that the time at risk influenced the annualized computed rate of suicide or suicide attempts. Finding a reduction of suicide risk during lithium treatment also might involve biased self-selection, since patients who remain in any form of maintenance treatment for many months are more likely to be treatment adherent and conceivably also less likely to become suicidal. However, it is not feasible to evaluate any long-term treatment in nonadherent patients. Moreover, several of the reported studies involved either the same persons observed with and without lithium treatment or random assignment to treatment options, minimizing the effects of self-selection bias. Results of these studies were consistent with the overall findings of marked reductions of risk of suicidal behaviors during lithium treatment (565).

If lithium is indeed effective in preventing suicide in broadly defined recurrent major affective syndromes, as it appears to be, it seems likely that this effect operates through reduction of

risk or severity of recurrences in depression or mixed dysphoric-agitated states (69, 315, 700). An additional factor may be reduction of impulsivity or of aggressive and hostile behavior with lithium facilitation of the central serotonergic neurotransmission system (226, 366, 526, 795), although this hypothesis is inconsistent with evidence that the antiserotonergic agent clozapine may reduce suicide risk in schizophrenia (603, 796) and the lack of evidence for a beneficial effect of SRI antidepressants on suicidal behavior (533, 563). An additional nonspecific but potentially important benefit of lithium treatment may arise from the supportive, long-term therapeutic relationships associated with the typically structured and relatively closely medically monitored maintenance treatment of patients with recurrent major mood disorders who are being treated with lithium.

c) "Mood-stabilizing" anticonvulsant agents

Evidence for a protective effect against suicide of putative "mood-stabilizing" agents other than lithium is extremely limited. Reports from a long-term collaborative German study that involved random assignment of patients with bipolar disorder and schizoaffective disorder to 2 years of treatment with either lithium or carbamazepine found no suicidal acts with lithium but substantial remaining risk with carbamazepine (592, 597). A recent study by Goodwin et al. (598) analyzed computerized records of 20,878 patients with a diagnosis of bipolar disorder (60,518 person-years of follow-up) in two major integrated health plans who were treated with lithium, divalproex, or carbamazepine. Approximately 27% of the person-years of exposure were to lithium alone, 22% were to carbamazepine or divalproex alone, and 47% had no exposure to any of the three medications. After adjustment for potential confounds, including age, gender, health plan, year of diagnosis, physical illness comorbidity, and use of other psychotropic medications, the authors found that the risk of suicide was 2.7 times higher during treatment with divalproex or carbamazepine than during treatment with lithium. For suicide attempts, the risk during divalproex or carbamazepine treatment was 1.9 times higher for attempts resulting in inpatient care and 1.7 times higher for attempts resulting in emergency department care, compared to risk during lithium treatment. Thus, in patients treated for bipolar disorder, risk for suicide attempts and for suicide was significantly lower during lithium treatment than during treatment with carbamazepine or divalproex.

No studies have addressed the risks of suicide attempts or suicide during treatment with other proposed mood-stabilizing agents. Given the widespread and growing use of divalproex, lamotrigine, oxcarbazepine, topiramate, and other anticonvulsants, often instead of lithium, it is extremely important to include measures of mortality risk and suicidal behavior in long-term studies of the effectiveness of these and other potential treatments for bipolar disorder. Such information may eventually allow an approximate ranking of the effectiveness of specific agents against the risk of suicidal behavior.

d) Antipsychotic agents

First-generation antipsychotic agents such as fluphenazine, thiothixene, and haloperidol are highly effective in treating delusions and hallucinations. However, it is not known whether or to what extent they may have beneficial effects in limiting suicide risk in psychotic patients. In the United States, the annual rate of suicide associated with schizophrenia has not fallen appreciably since the introduction of neuroleptics in the late 1950s (599–602), suggesting that first-generation antipsychotics have a limited effect on suicide risk.

Some first-generation antipsychotic agents may also have beneficial actions in major affective disorders. Virtually all antipsychotic agents are highly and rapidly effective in mania, and antipsychotic drugs may also have beneficial effects in some patients with major depression, with or without psychotic features (596). While these benefits may reflect nonspecific improvements in agitation, insomnia, and other distressing symptoms rather than specific antidepressant effects, they may nevertheless reduce suicide risk in highly agitated patients, especially those with psy-

chotic forms of depression and mixed bipolar states. On the other hand, haloperidol and perhaps some other first-generation antipsychotics may worsen depression in patients with chronic psychotic disorders as well as in those with major affective disorders, with or without psychotic features (112, 797). Although not well studied, the potentially distressing adverse effect of akathisia may actually increase risk of suicidal and other impulsive or violent acts (604, 605). Thus, because of the other advantages of second-generation antipsychotic agents in treating psychotic disorders (513) and perhaps manic, mixed, and depressive phases of bipolar disorder (512), use of first-generation antipsychotics in individuals with suicidal behaviors should generally be reserved for those needing the enhanced treatment adherence afforded by depot forms of medication.

Of all antipsychotics, clozapine is, by far, the best studied for specific beneficial effects on suicidal behaviors. As the prototype second-generation antipsychotic agent, clozapine differs from first-generation antipsychotics in several respects, including a markedly lesser propensity to induce adverse extrapyramidal neurological effects (596). Clozapine has particular utility in the substantial subgroup of patients with schizophrenia who poorly tolerate (798) or do not respond adequately to first-generation agents (799) and perhaps to other antipsychotics (596). In addition, clozapine may have beneficial effects on cognition in psychotic patients (800, 801), can improve social and occupational functioning (513), may limit the risk of abusing alcohol and other substances (802, 803), and may also decrease impulsive and aggressive behaviors (804–806).

Evidence for the effect of clozapine on the risk of suicidal behaviors comes from clinical trials involving patients with schizophrenia and schizoaffective disorder as well as from registry studies, which include all patients treated with clozapine regardless of diagnosis. Data from the clozapine national registry, for example, indicated a 75%–82% reduction in mortality, which is primarily attributable to a decrease in suicide risk (608, 609). An additional analysis of these registry data found a 67% reduction in risk for suicide attempts (607). Reduced annual risk of suicide was also found in clozapine-treated patients, compared to those given other antipsychotic agents, in the Texas State Mental Health System (609) as well as in the United Kingdom (610).

Sernyak et al. (611) used data on patients treated within the VA system and compared all patients over a 4-year period who initiated treatment with clozapine while hospitalized (N=1,415) to a control group of patients with schizophrenia who were matched to the clozapine-treated patients by using propensity scoring (N=2,830). Over the follow-up period, the patients who had been treated with clozapine at the index hospitalization experienced a lower rate of mortality, due to lower rates of respiratory disorders. However, the rate of suicide did not differ between the groups, although there was a nonsignificant trend for fewer suicides among those treated with clozapine. In addition, since patients were not treated with clozapine throughout the follow-up period, potential effects of clozapine on suicidality may have been less pronounced (612, 613).

The effects of clozapine on suicidal ideation and suicide attempts relative to patients' own baseline levels of suicidality were first examined in a retrospective study of 88 patients with chronic, neuroleptic-resistant DSM-III-R schizophrenia (N=55) or schizoaffective disorder (N=33) and a mean duration of illness of 14 years (607). Clozapine monotherapy with a mean daily dose of 500 mg was initiated in the hospital, and suicidality was assessed over a mean follow-up period of 3.5 years. At follow-up, improvements in symptoms of depression and hopelessness were noted, and the percentage of patients with no suicidal thoughts, plans, or attempts had increased from 53% at baseline to 88% with clozapine treatment. Compared to the 2-year period before initiation of clozapine, there was also a decrease in the relative lethality of suicide attempts and a 12.8-fold decrease in the annualized number of suicide attempts.

Other studies have compared clozapine-treated patients to patients treated with first-generation antipsychotics. Glazer and Dickson (807), for example, found a 57% lower risk of suicide attempts among schizophrenia patients treated with clozapine, compared with those treated with haloperidol (606). In another study, Spivak et al. (808) compared 30 patients with chronic, treatment-resistant schizophrenia who had been maintained on clozapine for at least 1 year with

an equal number of patients who had been treated with first-generation antipsychotics for similar lengths of time (808). They found that clozapine treatment was associated with significant reductions in ratings of impulsiveness and aggressiveness, along with fewer suicide attempts.

In the International Suicide Prevention Trial (InterSePT), a 2-year, multicenter randomized, controlled study with an open-label design with masked ratings, the effects of clozapine (N=479) were compared to those of olanzapine (N=477) in patients with DSM-IV schizophrenia (N=609) or schizoaffective disorder (N=371). Only 27% of the patients had an illness that was refractory to prior treatment, but all were deemed to be at unusually high risk for suicide, on the basis of having current suicidal ideation or having made a suicide attempt during the previous 3 years. The prestudy rate of suicide attempts in this group was 21% per year, or about four times that of broader samples of patients with schizophrenia (603, 606, 607). Although only patients receiving clozapine had blood drawn to monitor white blood cell counts, all patients were seen weekly for 6 months, then biweekly for an additional 18 months to minimize bias from the clozapine-treated patients' more frequent contact with health care staff. Primary endpoints, determined by blinded raters and certified by a three-member independent, blinded, expert Suicide Monitoring Board, included suicide attempts (including those that led to death), hospitalizations to prevent suicide, and a rating of "much worse suicidality" compared to baseline. Patients randomly assigned to receive clozapine showed a significantly longer time to a suicide event as defined previously, with a significant reduction in the rate of all suicidal events. In addition, fewer clozapine-treated patients required hospitalization or other clinical interventions intended to minimize suicidal behavior or were given an antidepressant or a sedative. The significant advantage of clozapine was evident in patients with schizoaffective disorder as well as those with schizophrenia. In addition, patients with more prestudy risk factors showed a relatively greater reduction in the rate of suicidal behavior. Furthermore, the greater effectiveness of clozapine was not due to superiority in treating positive or negative symptoms as rated at endpoint. Very few of these high-risk subjects died of suicide during the study (eight of 956 [0.837%] within 2 years), and the risk of suicide was nonsignificantly greater with clozapine than olanzapine (1.044% and 0.629%, respectively). The rate of suicide attempts was significantly less during clozapine treatment than during olanzapine treatment (7.7% and 13.8%, respectively, without correction for exposure times). However, the rate of suicide attempts during treatment with olanzapine was approximately half that found among these high-risk patients before the trial, suggesting that olanzapine treatment was associated with some beneficial effects on the risk of suicidal behaviors.

Overall, studies of the risk of suicidal behaviors during treatment with clozapine or other antipsychotic agents in chronically psychotic patients have involved nearly 134,000 subjects treated with clozapine and 123,000 given other antipsychotic agents (809). Although the selection of high-risk subjects in the InterSePT study (603) resulted in a great degree of heterogeneity in the frequencies of suicidal acts across studies, together these results indicate substantial superiority of clozapine over other antipsychotic agents in preventing suicidal acts in patients with schizophrenia and schizoaffective disorders. For other disorders, such as otherwise treatment-resistant bipolar disorder, no information is available about the effects of clozapine on risk of suicidal behaviors.

In clinical practice, the evident advantage of clozapine in reducing the rate of suicide attempts and perhaps the rate of suicide must be weighed against the risks of death from agranulocytosis, cardiomyopathy, myocarditis, and rare atypical forms of a syndrome similar to neuroleptic malignant syndrome (596). Other potential side effects of clozapine, including seizures, weight gain, hyperlipidemia, and type II diabetes, may also adversely affect longevity. Thus, in deciding whether to institute or continue clozapine treatment in patients with psychosis who are at risk for suicidal behaviors, the clinician will need to weigh the advantages and disadvantages of clozapine therapy for the individual patient.

For other second-generation antipsychotic agents, with the exception of perhaps olanzapine as discussed earlier, there is little direct evidence of an effect on suicidal behaviors. For the InterSePT study, olanzapine was chosen as the comparator because of its use in treating schizophrenia as well as limited evidence that it might have a superior effect in reducing suicidal behaviors, compared with haloperidol (810). There is also some evidence that the second-generation antipsychotic agents, including olanzapine and risperidone, may have mood-elevating or mood-stabilizing actions in addition to the ubiquitous antimanic effects of virtually all antipsychotics (112). These observations have led to the inference that second-generation antipsychotics also may have greater utility than first-generation agents in minimizing suicidal behaviors (811).

Compared to first-generation antipsychotics, the second-generation agents are less likely to be associated with nonadherence that results from extrapyramidal side effects and more likely to be associated with stable or improved cognition and higher levels of social and occupational functioning (801). Thus, there are general reasons for preferring to use second-generation antipsychotic drugs rather than first-generation antipsychotic drugs to reduce the risk for suicide in patients with schizophrenia. At the same time, it remains to be shown whether specific second-generation antipsychotic agents differ from each other or from first-generation antipsychotics in relative protective effects against suicidal behavior.

e) Antianxiety agents

Some patients who die by suicide have symptoms of severe psychic anxiety, panic, agitation, or severe insomnia close to the time of the suicidal act (79, 217, 218). Such persons may also abuse alcohol or other substances, perhaps in an attempt at "self-medication" for otherwise intolerably distressing symptoms. Since antianxiety agents can limit such symptoms, they also hold the possibility of reducing short-term suicide risk. Several agents, including benzodiazepines, buspirone, older sedatives, many antidepresssants, low doses of some second-generation antipsychotics, and some mood-altering anticonvulsants, may have calming effects in highly anxious and agitated patients and so might be expected to limit suicide risk. However, research addressing this plausible expectation is limited and inconclusive. No clinical trial has demonstrated short- or long-term effects on suicidal behavior of any type of antianxiety treatment. However, a recent analysis of data obtained in controlled trials of treatments for anxiety disorders found no significant differences in rates of suicidal behavior between those treated with active agents and those treated with placebo (118).

In treating potentially suicidal patients, benzodiazepines are often avoided because of concerns about their potential for inducing dependency (812), respiratory depression, or disinhibition, as has been observed in some patients with borderline personality disorder or mental retardation (614, 615, 813–815). Nevertheless, the risk of disinhibition appears small (816). In addition, benzodiazepines can limit psychic distress in depressed patients and improve sleep and may thereby potentiate the clinical benefits of antidepressant therapy (617–619). Whether such benefits are associated with reduced suicide risk remains unproved, however. In contrast, removal of a benzodiazepine during treatment may be associated with increased risk of suicidal behavior (817). Thus, decisions about initiating or continuing benzodiazepines in suicidal patients should consider these risks and benefits as they relate to the individual patient.

In summary, it is clinically appropriate to provide treatments aimed at reducing anxiety, psychic distress, agitation, and insomnia, regardless of the primary diagnosis, as part of a comprehensive effort to limit suicide risk, and antianxiety agents may have a useful empirical role in such situations, when employed with due regard to their risk of disinhibiting impulsive or aggressive behavior (219).

2. ECT

Prominent suicidality is widely considered a clinical indication for ECT (511, 512, 623). Much of the rationale for this practice is indirect and based primarily on the established and superior efficacy of ECT in treating severe depression that is often associated with suicidal ideation and

behaviors (623). ECT affords a more rapid and robust clinical antidepressant response than psychopharmacological, psychosocial, or other treatments, especially in severe, acute major depression, with or without psychotic features (623).

Only four studies have directly assessed the short-term effects of ECT on "suicidality" defined as apparent suicidal thinking. Rich et al. (620) analyzed depression and suicide ratings in a study designed primarily to measure treatment response with increasing numbers of alternate-day, right unilateral ECT. Suicide ratings, based on one item of the Hamilton Depression Rating Scale, improved maximally within 1 week and improved significantly more rapidly than measures of mood or lack of energy or interests. Similarly rapid and robust declines in suicide ratings were found in a naturalistic study of depressed patients with medication-resistant bipolar disorder who were given ECT with pharmacotherapy (818). Prudic and Sackeim (621) also found rapid and marked short-term reductions of suicidality with ECT in 148 depressed patients, reductions that even exceeded those in other Hamilton Depression Rating Scale items, especially, but not only, among the 49% of individuals considered clinically responsive to ECT. In data from a larger sample of 405 ECT-treated depressed patients recently analyzed by Kellner et al. (622), 58% of the patients were considered suicidal on the basis of suicidal ideation or suicide plans or attempts. The patients were treated with bitemporal ECT, and after a single treatment, suicidality was considered to have resolved in one-third of these suicidal patients, in two-thirds after three treatments, and in 95% by the end of a clinically determined series of ECT treatments (averaging just over seven treatments in the acute course).

These studies were limited by reliance on a single item from one rating scale. In addition, examination of the effects of ECT on suicidality was incidental to the primary aims of the studies, and any changes in suicidality associated with ECT were possibly incidental to the antidepressant effects of ECT. Moreover, no data directly address the effects of ECT on suicidal behavior or suicide fatalities. Nevertheless, and consistent with impressions arising from clinical experience, available studies indicate that acute treatment with ECT is associated with frequent and rapid reductions in apparent suicidality, possibly even before major improvements in other symptoms of depression.

As a means of evaluating possible long-term benefits of ECT on suicidal risk, several studies have examined rates of suicide in different treatment eras, before and after the introduction of ECT (and other treatments), with follow-up periods as long as 10 years. A recent meta-analysis, which calculated suicide rates from published literature for patients with mood disorder who were followed naturalistically for at least 6 months after an index hospitalization, indicated a 41% decrease in suicide rates, from 1.33% to 0.770% per year, between the pre-ECT years and later years when ECT and then antidepressants were in widespread use (819). However, interpretation of this information for possible effects of ECT is obscured by uncertain reliability in identifying persons who died by suicide in different eras and by the effect of multiple therapeutic developments across the decades included in the analysis.

In an earlier study comparing clinically matched samples of depressed patients from a Monroe County, New York, psychiatric case register, Babigian and Guttmacher (820) assessed the effect of ECT on mortality at 5-year follow-up between 1960 and 1975 for 1,587 patients treated with ECT and 1,587 who did not receive ECT. The groups did not differ in risk for suicidal behavior or in overall mortality, but their comparison may be confounded by the selection of patients with severe symptoms for treatment with ECT. Additional studies involving ECT were reviewed by Tanney (821), Prudic and Sackeim (621), and Sharma (822). These studies were primarily nonrandomized, uncontrolled, retrospective clinical observations from relatively small case series. It is not surprising that they also failed to find evidence of enduring effects on suicide rates after short-term ECT.

The available data thus suggest rapid short-term benefits against suicidal thinking but do not provide evidence of a sustained reduction of suicide risk following short-term ECT, despite its superior effectiveness in severe depression (623). Similar to the situation with antidepressant

therapy, there is still very little information arising from systematically applied and evaluated long-term treatment with ECT comparable to the data available for maintenance treatment with lithium and clozapine, and it is not reasonable to expect long-term effects on suicide risk from time-limited treatment interventions of any kind. In short, it remains to be tested whether long-term use of maintenance ECT or short-term ECT followed by long-term antidepressant or mood-stabilizing treatment may affect long-term risk of suicidal behavior.

E. PSYCHOTHERAPIES

In addition to pharmacotherapies and ECT, psychotherapies play a central role in the management of suicidal behavior in clinical practice. Although few rigorous studies have directly examined whether these interventions reduce suicide morbidity or mortality per se, clinical consensus suggests that psychosocial interventions and specific psychotherapeutic approaches are beneficial to the suicidal patient. Furthermore, in recent years, studies of psychotherapies have demonstrated their efficacy in treating disorders such as depression and borderline personality disorder that are associated with increased suicide risk (511, 515, 823–830). The apparent superiority of combination treatment with psychotherapy and pharmacotherapy in individuals with depression also suggests a need for further study of such combination treatment in individuals with suicidal behaviors (824, 826–830). Other psychosocial interventions may also be of value in treating suicidal patients, particularly given their utility in minimizing symptoms and risk of relapse in patients with bipolar disorder and patients with schizophrenia (512, 513, 831).

1. Psychodynamic and psychoanalytic psychotherapies

In patients with suicidal behaviors, experience with psychodynamically and psychoanalytically oriented psychotherapies is extensive and lends support to the use of such approaches in clinical practice. Research data on the effects of these therapies in suicidal patients are more limited but supportive. For example, Bateman and Fonagy (624, 625) randomly assigned 44 patients with borderline personality disorder, diagnosed according to standardized criteria, to either a standard psychiatric care group or a partially hospitalized group who received individual and group psychoanalytic psychotherapy for a maximum of 18 months. At the end of the treatment period, as well as at 6-, 12-, and 18-month follow-ups, patients assigned to the psychoanalytically oriented partial hospitalization group had significantly lower numbers of self-mutilatory acts and were more likely to have refrained entirely from self-mutilatory behavior in the preceding 6 months. In the partial hospitalization group, similar highly significant reductions were seen in the number of suicide attempts and in the number of patients who had made a suicide attempt during the follow-up period. During and after the treatment, parallel persistent improvements were seen in other outcome measures, including fewer inpatient days, reductions in depressive symptoms, and improved social and interpersonal functioning in the psychoanalytically treated group. These data demonstrate the efficacy of psychoanalytically oriented partial hospital treatment in patients with borderline personality disorder. Further, they show that such treatment can improve factors such as depression and interpersonal functioning that modify suicide risk and can simultaneously diminish a range of self-harming and suicidal behaviors.

Stevenson and Meares (832) studied a group of 30 poorly functioning outpatients with borderline personality disorder and found that twice-weekly psychodynamic therapy resulted in significant reductions in self-harm behaviors as well as in improved overall outcomes, compared to the year preceding treatment. In addition, the 30 patients treated with twice-weekly psychodynamic therapy also had better outcomes and fewer self-harming behaviors relative to a group of control subjects who received treatment as usual (833). Thus, although limited by small samples and lack of random assignment to the control condition, these studies also sug-

gest a benefit of psychodynamic approaches in reducing self-harming behaviors among individuals with borderline personality disorder.

Clarkin et al. (834) developed a modified form of psychodynamic treatment called Transference Focused Psychotherapy and used this approach to treat 23 female patients with a diagnosis of DSM-IV borderline personality disorder. Twice-weekly treatment with Transference Focused Psychotherapy was associated with significant decreases on measures of suicidality, self-injurious behavior, and medical and psychiatric service utilization, relative to baseline levels. In addition, compared to the year preceding treatment, there was a significant decrease in the number of patients who made suicide attempts and in the medical risk and severity of physical injury associated with self-harming behaviors. Although again limited by a small sample as well as by the lack of a control group, these findings coincide with clinical impressions of benefit to suicidal patients treated with psychoanalytic and psychodynamic approaches.

2. Cognitive behavior therapy

Given the evidence for the effectiveness of cognitive behavior therapy in treating depression and related symptoms such as hopelessness (511, 825, 835–837), it might be expected to also be of benefit in the treatment of suicidal behaviors. Again, however, evidence from randomized trials is extremely limited. In a randomized clinical trial involving 20 patients, Salkovskis et al. (628) examined whether individuals at high risk for repeated suicide attempts were more improved by treatment as usual or by a cognitive behavior intervention that focused on teaching problem-solving techniques. At the end of treatment and at follow-up up to 1 year later, the group randomly assigned to the problem-solving treatment showed significantly more improvement than control subjects on ratings of depression, hopelessness, and suicidal ideation, and over 6 months of follow-up, there was some evidence for a decrease in suicide attempts. Although the sample was small, these findings provide some evidence for the benefit of cognitive behavior interventions in reducing suicidal ideation and behaviors in patients at high risk for repeated suicide attempts.

3. Dialectical behavior therapy

Dialectical behavior therapy, a psychosocial treatment for borderline personality disorder that combines individual psychotherapy with group practice of behavioral skills, has also been studied in a randomized fashion with respect to its effects on self-injurious behaviors. Linehan et al. (522, 838) randomly assigned 39 women who had a history of self-injurious behavior and met the criteria for borderline personality disorder to 1 year of dialectical behavior therapy or treatment as usual. During the year of treatment, as well as during the initial 6 months of follow-up, the patients treated with dialectical behavior therapy had fewer incidents of self-injurious behavior and those that did occur were less medically severe. Functioning, as measured by the Global Assessment Scale, and social adjustment were also better in the group treated with dialectical behavior therapy. After 1 year, the group treated with dialectical behavior therapy continued to require significantly fewer psychiatric hospital days, but the benefits of the intervention in reducing the number and severity of suicide attempts were no longer apparent. In a subsequent study, Linehan et al. (523) compared dialectical behavior therapy to treatment as usual in a group of patients with borderline personality disorder and comorbid substance dependence. Patients treated with dialectical behavior therapy had more days of substance abstinence at follow-up intervals of up to 16 months. In terms of self-harming behaviors, dialectical behavior therapy showed no benefits over treatment as usual, although patients in both groups experienced reductions in self-injury. An additional prospective study (839) evaluated 24 female patients with borderline personality disorder who were treated with dialectical behavior therapy in a 3-month inpatient treatment program and continued in outpatient treatment with dialectical behavior therapy. Compared to ratings at the time of hospital admission, a signifi-

cant decrease in the frequency of self-injury was noted 1 month after discharge that coincided with improvements in ratings of depression, dissociation, anxiety, and global stress.

Additional evidence for the effects of dialectical behavior therapy in treating women with borderline personality disorder comes from a randomized clinical trial conducted by Verheul et al. (840). In this study, 58 women with borderline personality disorder were assigned to 12 months of treatment with either dialectical behavior therapy or treatment as usual. Particularly in patients with a history of frequent self-mutilation, dialectical behavior therapy was associated with greater reductions in suicidal, self-mutilating, and self-damaging impulsive behaviors, compared to usual treatment.

Taken together, the data from these trials suggest the possible utility of dialectical behavior therapy in treating suicidal and self-injurious behaviors in individuals with borderline personality disorder. However, the sample sizes in these trials were small, and it is not clear whether the patients were representative of those seen in usual clinical practice. Larger samples are also needed to determine whether some patients may be prone to paradoxical increases in self-injurious behavior with dialectical behavior therapy (841). Finally, since no data are available on the utility of dialectical behavior therapy in the treatment of patients with diagnoses other than borderline personality disorder, further study is needed before recommending dialectical behavior therapy for routine use in the treatment of individuals with suicidal behaviors.

4. Other psychosocial interventions

As noted earlier, psychosocial interventions other than psychotherapies have shown clear efficacy in the treatment of a number of psychiatric disorders. To date, however, randomized clinical trials and longitudinal studies of various psychosocial treatments have produced conflicting results in individuals at risk for suicidal behaviors. Most interventions have focused on the treatment of individuals identified at the time of an index suicide attempt. For example, van der Sande et al. (842) compared the clinical efficacy of an intensive psychosocial intervention with treatment as usual in 274 randomly assigned individuals who presented for medical treatment after attempting suicide. At 12-month follow-up, the authors found no difference in the number of repeat suicide attempts in patients receiving treatment as usual, compared to those given intensive psychosocial treatment, which consisted of brief admission to a crisis-intervention unit and problem-solving aftercare. In contrast, in a randomized trial that compared brief psychological treatment to treatment as usual in 119 individuals seen in an emergency department for self-poisoning, Guthrie et al. (843) found significant decreases in suicidal ideation and in additional self-harm. Also, in a study of 120 suicide attempters, Welu (844) found a statistically significant reduction in suicide attempts in those who were randomly assigned to a 4-month follow-up outreach program, compared with those randomly assigned to receive treatment as usual.

The three studies just described (842–844) were included in an extensive review and meta-analysis of randomized clinical trials of psychosocial interventions for the treatment of patients with deliberate self-harm by Hawton et al. (627, 633). The interventions considered in the meta-analysis were diverse and included problem-solving therapy, dialectical behavior therapy, home-based family therapy, provision of an emergency card to quickly gain access to care, and intensive intervention plus outreach. While promising results were noted for problem-solving therapy and provision of an emergency card, as well as for dialectical behavior therapy, the sample sizes were too small and the studies too underpowered to detect clinically significant differences in effects on repetition of deliberate self-harm. Thus, a number of psychosocial interventions have been targeted to individuals who have made suicide attempts or engaged in other self-harming behaviors; however, current evidence from randomized clinical trials is too limited to support reliable conclusions about the efficacy of these approaches in individuals with suicidal behaviors.

In addition to specifically targeting suicidal behaviors, psychosocial interventions may indirectly decrease rates of suicide attempts by enhancing the treatment of the patient's underlying diag-

nosis. Rucci et al. (595) treated 175 patients with bipolar I disorder for a 2-year period using primarily lithium pharmacotherapy and either psychotherapy specific to bipolar disorder, which included help in regularizing daily routines, or nonspecific intensive clinical management involving regular visits with empathic clinicians. Before patients entered the trial, the rate of suicide attempts was 1.05 per 100 person-months. During the acute treatment phase, patients experienced a threefold reduction in the rate of suicide attempts, with a 17.5-fold reduction during maintenance treatment, suggesting that treatment in a maximally supportive environment could significantly reduce suicidal behaviors in high-risk patients with bipolar disorder. During the follow-up period, fewer suicide attempts occurred in patients treated with psychotherapy specific to bipolar disorder; however, because of the low numbers of suicide attempts during treatment, it was not possible to determine whether the two psychosocial interventions were statistically different in their effectiveness. Nonetheless, these findings suggest that combinations of psychosocial interventions and pharmacotherapy offer promise in diminishing risk of suicidal behaviors in at-risk individuals.

PART C: FUTURE RESEARCH NEEDS

In assessing and caring for patients with suicidal ideas and behaviors, multiple questions remain to be answered and would benefit from additional research. These future research directions can be divided into three major categories: delineating the neurobiological underpinnings of suicide and other suicidal behaviors, more precisely defining the factors that affect short-term and longer-term risk for suicide and other suicidal behaviors, and determining the most effective interventions for diminishing such risks.

In terms of the underlying neurobiology of suicide and other suicidal behaviors, a great deal of work has already focused on the role of the serotonergic neurotransmitter system in suicide attempts and in suicide (366). Additional research has suggested an association between suicide and hyperactivity of the HPA axis (757, 845), while still other work has suggested a correlation between suicidal behaviors and serum cholesterol levels (758, 759, 846). In keeping with the remarkable recent advances in molecular genetics, there has also been intense interest in seeking associations between candidate genes (primarily relating to serotonergic function) and suicide risk. Although polygenic inheritance is suspected, a specific genetic model for suicidal behaviors remains elusive (17, 368). Furthermore, while the biological markers described earlier are potentially useful in understanding the biological underpinnings of suicidal behaviors, none are sufficiently sensitive or specific enough to recommend their use in routine screening or in clinical practice. Additional work is clearly needed to identify specific genes, biological markers, or imaging findings that are indicative of a particularly high risk for suicide or suicidal behaviors. Availability of such markers would allow at-risk individuals to be identified and treated more readily, presumably decreasing their risk for suicide. In addition, identification of more homogenous groups of at-risk individuals might permit more precise targeting of treatments to address underlying neurobiological abnormalities.

Many studies have already examined particular risk and protective factors for suicide and suicidal behaviors; however, more information is needed. Specifically, future research should focus on determining factors that are associated with modifying short-term risk (days to weeks), compared with intermediate-term risk (weeks to months) or longer-term or lifetime risks. In addition to strengthening the existing evidence base on the multiple factors already reviewed, future research should also address the effects of multiple co-occurring risk factors as

well as the relative contributions of different factors to the overall risk of suicide or other suicidal behaviors. For example, studies of the relationship between physical illness and suicide are needed to determine the contributions of social and psychological factors to suicide in patients with physical illnesses. Similarly, with increased rates of suicide in specific occupational groups, more research is needed to determine whether suicide risk relates to preexisting factors such as psychiatric illness or to specific occupational stressors and/or characteristics such as access to lethal methods. In addition, data for individuals who die from suicide should be clearly distinguished and analyzed separately from data for individuals exhibiting other suicidal behaviors, since the two groups almost certainly constitute distinct although overlapping populations. Furthermore, given the low population rates of suicide and other suicidal behaviors, all studies of risk factors will need to have adequate statistical power in order to draw meaningful conclusions from their results. The ultimate goals of these avenues of research would include an improved ability to estimate suicidal risk in the clinical context. Such findings may also permit development of a reliable scale for suicide assessment that would have greater positive predictive value and might be usable for clinical screening of at-risk individuals at the initiation of treatment or for ongoing assessments of risk during treatment.

Rather than simply identifying associations between suicide and static risk factors such as demographic variables, research should have the specific goal of identifying factors that may be modifiable with interventions. In addition, future research should provide information on rates of suicide and other suicidal behaviors in clinically important subgroups of at-risk individuals that could serve as a baseline for studies of specific interventions to decrease risk. Although most efforts in the past have been aimed at decreasing the effects of suicide risk factors, research should also develop approaches to increase the effects of factors that protect against suicide. Finally, an improved understanding of risk factors for suicidal behaviors may suggest selective or population-based approaches to suicide prevention that could then be subjected to empirical testing.

In terms of treatment, studies with lithium and with clozapine have clearly demonstrated that interventions are capable of reducing the likelihood of suicide and of other suicidal behaviors. Additional research with these agents should focus on delineating factors such as serum levels that may correlate with improved response and on defining the patient populations in which these medications are most likely to be effective (e.g., patients grouped by diagnoses and diagnostic subtypes, associated clinical symptoms, treatment histories, and estimated level of suicide risk). Clinical trials are also needed to determine whether similar benefits are seen with other second-generation antipsychotic medications or with anticonvulsant medications (e.g., divalproex, lamotrigine, carbamazepine, oxcarbazepine, and topiramate). Pharmacoepidemiologic studies may provide additional information to complement the results of clinical trials.

With ECT, it remains to be tested whether long-term reduction of suicide or other suicidal behaviors can be accomplished by long-term use of maintenance ECT or by an acute course of ECT followed by long-term antidepressant or mood-stabilizing treatment. If other somatic treatments such as transcranial magnetic stimulation or vagal nerve stimulation continue to show promise in the treatment of depressive and/or psychotic disorders, their ability to affect the risk for suicide and other suicidal behaviors should also be examined.

Clinical trials with psychotherapy should not only examine the effects of specific psychotherapeutic approaches in reducing the rate of suicide and other suicidal behaviors but should also aim to identify specific aspects of those psychotherapeutic approaches that are associated with beneficial outcomes. Additional studies should compare combined treatment with psychotherapy and pharmacotherapy to treatment with either form of therapy alone. Studies in clinically important patient subgroups, such as those with chronic suicidality or with comorbid physical diagnoses or substance use, are also essential.

The effects of other interventions should also be examined, including comparisons of approaches such as hospitalization that have been inadequately tested but are assumed to be "best practice." Given the frequent use of suicide prevention contracts in clinical practice, their safety

and effectiveness should be assessed in a methodologically rigorous fashion in key subgroups of patients. Other possible interventions might be designed to improve treatment adherence, continuity of care, or access to emergency services.

When designing studies of pharmacotherapies, psychotherapies, and other interventions, consideration should be given to targeting particular factors or time periods that are associated with increased risk (e.g., immediately after hospital discharge or after a serious interpersonal loss). As with studies of specific risk factors, intervention studies should have adequate statistical power. They should clearly distinguish between effects on suicide and effects on other suicidal behaviors and should also be designed to give information about treatment effects over specific time periods of risk (e.g., immediate versus lifetime). In addition, they should attempt to determine whether effects on suicidal behaviors occur as a result of or are independent from effects of treatments on associated psychiatric disorders. Finally, they should establish the duration and intensity of treatment that produce optimal benefits to suicidal patients.

INDIVIDUALS AND ORGANIZATIONS THAT SUBMITTED COMMENTS

Aaron T. Beck, M.D.
Carl Bell, M.D.
Lanny Berman, M.D.
Romano Biancoli, Ph.D.
Dan Blazer, M.D.
Bruce Bongar, Ph.D.
Jeff Bridge, Ph.D.
Robert S. Brown, Sr., Ph.D., M.D.
William T. Carpenter, Jr., M.D.
Ken Certa, M.D.
Paula Clayton, M.D.
Jack R. Cornelius, M.D., M.P.H.
Robert R. Cummings, M.D.
Glenn W. Currier, M.D., M.P.H.
William Dalsey, M.D.
Jose de Leon, M.D.
Lisa Dixon, M.D., M.P.H.
Paul Duberstein, Ph.D.
Jill M. Harkavy-Friedman, Ph.D.
Glen Gabbard, M.D.
Jeffrey Geller, M.D., M.P.H.
Sukhmani K. Gill, M.D.
Leslie Hartley Gise, M.D.
Allen I. Green, M.D.
William M. Greenberg, M.D.
Herbert Hendin, M.D.
Robert M.A. Hirschfeld, M.D.
Kay Redfield Jamison, Ph.D.
Jeffrey Janofsky, M.D.
Jack Krasuski, M.D.
Anthony Lehman, M.D.
John T. Maltsberger, M.D.
J. John Mann, M.D.
Peter M. Marzuk, M.D.
Marlin Mattson, M.D.
Thomas H. McGlashan, M.D.
Joseph P. Merlino, M.D.
Jeffrey L. Metzner, M.D.
Alexander Miller, M.D.
Michael Craig Miller, M.D.
George E. Murphy, M.D.
Maria A. Oquendo, M.D.
Jane Pearson, Ph.D.
Debra A. Pinals, M.D.
Harold Alan Pincus, M.D.
Eric Plakun, M.D.
Charles W. Portney, M.D.
Victor I. Reus, M.D.
Charles L. Rich, M.D.
Carl Salzman, M.D.
Moisy Shopper, M.D.
Stephen F. Signer, M.D.
Joseph S. Silverman, M.D.
Barbara H. Stanley, Ph.D.
Robert Stern, M.D., Ph.D.
Nada Stotland, M.D., M.P.H.
Nicholas E. Stratas, M.D.
Howard S. Sudak, M.D.

William R. Tatomer, M.D.
Bryce Templeton, M.D., M.Ed.
Leonardo Tondo, M.D.
Edward A. Volkman, M.D.
Joan Wheelis, M.D.

American Academy of Psychiatry and the Law
American Academy of Psychoanalysis and Dynamic Psychiatry
American Association for Emergency Psychiatry
American Association for Geriatric Psychiatry
American College of Emergency Physicians
American Foundation for Suicide Prevention
American Psychoanalytic Association
Professional Risk Management Services

Acknowledgment
Amy S. Bloom, M.P.H., assisted in research and development of this guideline.

REFERENCES

The following coding system is used to indicate the nature of the supporting evidence in the references:

[A] *Randomized, double-blind clinical trial.* A study of an intervention in which subjects are prospectively followed over time; there are treatment and control groups; subjects are randomly assigned to the two groups; both the subjects and the investigators are blind to the assignments.
[A–] *Randomized clinical trial.* Same as [A] but not double-blind.
[B] *Clinical trial.* A prospective study in which an intervention is made and the results of that intervention are tracked longitudinally; study does not meet standards for a randomized clinical trial.
[C] *Cohort or longitudinal study.* A study in which subjects are prospectively followed over time without any specific intervention.
[D] *Control study.* A study in which a group of patients and a group of control subjects are identified in the present and information about them is pursued retrospectively or backward in time.
[E] *Review with secondary data analysis.* A structured analytic review of existing data, e.g., a meta-analysis or a decision analysis.
[F] *Review.* A qualitative review and discussion of previously published literature without a quantitative synthesis of the data.
[G] *Other.* Textbooks, expert opinion, case reports, and other reports not included above.

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