

Chapter 26

An Overview and Synopsis of Risk Factors, Assessment, and Treatment of Suicidal Patients Over the Life Cycle

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ONE OF THE most difficult clinical problems facing the health care professional is the prediction and prevention of suicide. Most general physicians see at least six seriously suicidal patients each year and will encounter many more patients in their practices who have suicidal thoughts and feelings. Between 50% to 80% of people who commit suicide have seen a doctor in the weeks to month prior to their death and often use medications prescribed by their physician to end their lives (Barraclough et al. 1974; Dorpat and Ripley 1960; Hagnell et al. 1981; Robins 1981; Robins et al. 1959). This disturbing fact can change through increased health care professional education about suicide. This chapter underscores the message of other chapters in this volume, namely that prevention of completed suicide depends on the medical and mental health practitioner's early detection and intervention with patients at risk for suicidal behavior.

Another goal of this chapter is to provide the reader with a comprehensive summary of *Suicide Over the Life Cycle* by presenting several theoretical models for understanding suicidal behavior across the life cycle, distilling what we know from the research literature about risk factors, including sociodemographic, psychiatric, psycho-

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social, genetic, and biological variables, and translating this information into clinical assessment and intervention strategies for suicidal patients. This review is meant to be an *overview* and *condensation* of the excellent chapters in this volume that precede it, where the reader should turn for more complete and detailed discussions of the topics raised in this chapter. The reader should use this chapter as a synopsis of the salient points emphasized in this volume when time does not permit more in-depth study. The important points to remember in the assessment of suicidal patients are emphasized here. This chapter is meant to provide the clinician with a framework for carrying out rigorous diagnostic evaluations and formulating rational and effective treatment plans.

One of the most important facts to remember is that most suicidal patients are suffering from a psychiatric disorder. In fact, suicide is one of the most common complications of mental illness, carrying with it a 10 times greater risk than in the general population (see Black and Winokur, Chapter 6, this volume; Barraclough et al. 1974; Dorpat and Ripley 1960; Goldberg 1981; Guze and Robins 1970; Hillard et al. 1983; Miles 1977; Morrison 1982; Pokorny 1964). Importantly, more psychiatric patients are treated by primary-care physicians than by psychiatrists, with more than 88% of patients experiencing a first psychiatric crisis seeking medical rather than psychiatric treatment. It has also been estimated that 25% to 30% of ambulatory patients in general medical practices have a diagnosable psychiatric condition (Blumenthal 1984). In addition, 10% to 15% of people suffering from major psychiatric illnesses such as affective disorder, schizophrenia, and alcoholism will end their lives by suicide (Miles 1977). Unfortunately, physicians detect only one of six patients who go on to kill themselves, even though information about warning signs may have been available from others (Barraclough et al. 1974; Murphy 1972). For many of these patients, the physician has missed the psychiatric diagnosis or, if recognized, has undertreated the illness. Therefore, attempts at targeting efforts to prevent successful suicide—that is, to detect all behavior that leads to a final common pathway, which is suicide completion—is best done if there is an understanding of the various risk-factor domains through which suicidal behavior emerges. Since these domains can be detected and manipulated, they represent important opportunities for the clinician to intervene. The clinician, then, has a critical role to play in the early detection and clinical diagnosis of mental illness, which is a cornerstone to prevention, effective intervention, and treatment of suicidal behavior.

EPIDEMIOLOGY OF SUICIDE

Suicide is the eighth leading cause of death in the United States today

and the third leading killer of young people. In 1987, 30,796 suicides were recorded in our country, 4,924 of these by young people, ages 15 to 24 (see Buda and Tsuang, Chapter 2, this volume). The rate of suicide for our nation's youth has tripled over the past 30 years (Blumenthal 1984; Centers for Disease Control 1987b). The actual number of suicides may be two to three times higher because of the underreporting that occurs. In addition, many single motor car accidents and many homicides are, in fact, suicides. In the world at least 1,000 suicides occur each day; 645,680 years of productive life are lost each year alone in the United States due to deaths by suicide. Of these productive years lost attributable to suicide, 71% occurred among white males; white females accounted for another 19% (Centers for Disease Control 1987a).

Suicide cuts across all age, racial, occupational, religious, and social groups (see Buda and Tsuang, Chapter 2; Diekstra, Chapter 20, this volume). Considerable research efforts have been made to determine specific demographic risk factors for suicide over the life cycle. Important differences have been found in sociodemographic variables, including age, race, and sex. The most pronounced shifts in suicide rates are occurring for particular age groups. Suicide rates are known to increase steadily with age, but current rates for young adults, ages 25 to 34, are rivaling those in older age groups. While the overall base rate of suicide (12.7/100,000) has remained about the same over the past 20 years, the rate has soared for young people ages 15 to 24 and has increased by 25% for the elderly from 1981 to 1986 (Centers for Disease Control 1987a, 1987b). However, although the rates for young people have plateaued since 1980, it is not yet clear if they have begun to decline. Nonetheless, the United States now has one of the highest suicide rates for young men in the world, surpassing Japan and Sweden, countries long identified with high rates of suicide. One group of youth at lower risk for suicide are college students, with rates about half that of their nonstudent age-mates (see Schwartz and Whitaker, Chapter 12, this volume). Reports of suicide among very young children are rare, but suicidal behavior is not. As many as 12,000 children, ages 5 to 14, may be hospitalized in this country every year for deliberate self-destructive acts (Department of Health and Human Services 1986; Pfeffer 1981).

Why has this increase in youth suicide over the past 20 years occurred? A number of explanations have been proposed to account for the rise in the youth suicide rate. Increasing rates of suicide appear to parallel the rise in risk factors associated with suicide in young people, including depression, conduct disorders, and substance abuse (Klerman 1989; Robins 1986; see Vaillant and Blumenthal, Chapter 1, this volume). Holinger and Offer (1982) suggest that the increase in youth suicide is related to population effects. They hy-

pothesize that when the proportion of youth in the society is high, then a rise in suicide will occur. These authors propose that large numbers of young people in a society result in increased competition for desirable opportunities such as jobs and educational experiences that in turn may lead to failure to achieve goals. This may result in hopelessness, despair, and suicidal ideation and behavior for some youth (see Brent and Kolko, Chapter 11, this volume). A similar pattern of high youth suicide rates occurred at the beginning of the 20th century when young people also comprised a higher proportion of the total population (Goldney and Katsikitas 1983; Hendin 1986; Holinger et al. 1987). Other theories link the dramatic rise in youth suicide rates to the increase in violent behavior and access to violent methods (Boyd and Moscicki 1986). Some researchers postulate that the increased rates of both depression and suicide shifting to younger age groups in recent years may be due to certain social influences such as the increased divorce rate, geographic mobility (with its loss of attachments), changes in family structure, increased urbanization, and decreased religious affiliation, interacting with individual genetic vulnerability (see Vaillant and Blumenthal, Chapter 1, this volume; Klerman and Weissman 1989).

Despite the rapid increase in youth suicide, the highest suicide rates and greatest number of suicides are in older people. Although this group comprises 26% of the total United States population, it accounts for approximately 39% of deaths by suicide. White males over the age of 50 represent the preponderance of these deaths (Department of Health and Human Services 1986). Epidemiologic research has shown that large birth cohorts demonstrate higher suicide rates at every age level (Blumenthal 1984; Goldney and Katsikitas 1983). As the post-World War II generations move into the older age groups, suicide is likely to become an even more significant problem for these birth cohorts (Goldney and Katsikitas 1983; Hendin 1986).

The overwhelming majority of completed suicides across the life cycle are males. They comprise approximately three-fourths of the total, with white males accounting for about 70%. Well over half of male suicides shoot themselves, and the use of guns is increasing rapidly. Women attempt suicide three times as frequently as men, using potentially less lethal means, including medications and wrist slashing. However, one-third of women who complete suicide and over half of the 15- to 29-year-old group use guns. This has been an alarming trend since the 1970s, when the use of firearms became the primary method of suicide for younger people (Blumenthal 1988; Boyd 1983; Boyd and Moscicki 1986; Brent et al. 1987; Centers for Disease Control 1987a, 1987b).

College students, who have a 50% lower suicide rate than their

nonuniversity-attending peers, use guns less frequently as a method of suicide (see Schwartz and Whitaker, Chapter 12, this volume). Among racial groups, whites commit suicide twice as frequently as blacks. However, sharp increases in the suicide rate among young black men have been reported. Native American youth also have a very high rate of suicide, with the highest rate being for young people in those tribes that are undergoing faster cultural assimilation (see Brent and Kolko, Chapter 11, this volume). While Hispanics have a lower suicide rate than whites, more than one in three Hispanic men and more than one in four Hispanic women who commit suicide are under the age of 25 (Smith et al. 1985). Religious groups with the highest rates of suicide are Protestants followed by Jews and Catholics. Other important sociodemographic factors include being separated or divorced, losing a job, living alone, and being recently bereaved (see Adam, Chapter 3, this volume; Blumenthal 1988).

Research findings provide evidence for the delineation of two separate but overlapping groups of people who engage in suicidal behavior at different points in the life cycle: those who attempt suicide and those who complete suicide (Blumenthal 1988; Brown et al. 1982a; Linehan 1986). Attempters tend to be younger and more often women, and their attempts tend to be more impulsive and ambivalent. Completers are most often male, tend to be older, and use more lethal methods for self-destruction (Blumenthal 1988; Frances 1986; Department of Health and Human Services 1986). A history of a previous suicide attempt is one of the most powerful predictors of suicide (Linehan 1986; Tuckman and Youngman 1968). About 1% of suicide attempters will go on to kill themselves each year; 10% to 20% of suicide attempters eventually end their lives by suicide (Avery and Winokur 1978). Additionally, persons who threaten suicide have higher rates of completed suicide (Fowler et al. 1979; Pokorny 1966).

Research has also suggested that different psychiatric disorders are associated with suicide attempts and completions across the life cycle. Nonfatal attempters are more likely to have personality disorders, chemical dependence, and situational disorders. Weissman et al. (1989) found that 20% of patients with the diagnosis of panic disorder had made a suicide attempt, a finding that could not be explained by the comorbidity of substance abuse and/or affective disorder. Those who actually kill themselves have shown a predominance of major affective disorders, alcoholism, schizophrenia, and, in young people, conduct disorders and depression. The co-occurrence of one of these illnesses with certain personality disorders, including antisocial and borderline personalities, appears to increase suicidal risk significantly (Blumenthal 1984; Blumenthal and Kupfer 1986a, 1988; Frances 1986; Frances and Blumenthal 1989; Department of

Health and Human Services 1986).

However, there are limitations in trying to predict suicide based on these demographic variables (Motto 1977). In trying to do so, Pokorny (1983) found many false positives, that is, people who had a number of risk factors but who did not go on to kill themselves. Nonetheless, despite the low base rate of suicide in the general population, the clinician and patient are best served when all symptoms and clues of suicidal behavior are assessed and when rapid intervention is undertaken.

SOCIOCULTURAL AND PSYCHOLOGICAL EXPLANATIONS OF SUICIDE

The physician is no stranger to death. Clearly, one goal of the practice of medicine is to avert untimely mortality. Therefore, the clinician may be particularly perplexed by patients who want to end their lives. There is *no one reason* why people decide to kill themselves. Suicide is a complex human behavior and is the final common pathway for many human problems. This self-destructive act can reflect many motivational determinants across the life cycle: personal and interpersonal, biological, familial, and cultural. For many, it is a response to loss, separation, and abandonment. For some, it may represent a release from the despair of what seems to be a barren future or the hopelessness of old age. For others, it may be an impulsive act, experienced as revenge for rejection. For yet others, it may symbolize the desire to be reunited with a lost loved one. Suicide can also be a response to the disordered thinking of psychoses, a toxic state such as drug use, or the cognitive distortions that occur with depressive illness or schizophrenia (Blumenthal 1984; 1988).

Suicides have been reported throughout history with several biblical references to self-destructive acts. Reports of suicidal behavior have been found in most ancient literary texts, but the root of the religious prohibition against suicide comes from the Judeo-Christian tradition (Hankoff and Einsidler 1979). As the frequency of suicide among early Christians began to increase, the Church introduced the concept that suicide was both a sin and a crime. In the fourth century, St. Augustine rejected suicide as an option. He reasoned that suicide precluded the possibility of individual repentance and violated the Fifth Commandment relating to killing (Schneidman 1979).

The contemporary study of suicide began around the turn of the century with the contributions of two major streams of thought: sociological and psychological (see Adam, Chapter 3, this volume; Schneidman 1979). In 1897, Durkheim examined society's effects on individual behavior and posited that suicide was the result of society's influences and control over the individual. In his book *Le Suicide*, Durkheim (1951) formulated four types of suicide. The first, the

"altruistic" suicide, occurs as a result of society's expectations of the individual. An example of this would be hara-kiri, where the society's customs dictate that the honorable action for the individual is to end one's own life. In the United States, the most frequent form of suicide would be the "egoistic" type. In this case, the individual has poor social supports and poor ties to the society. An example of this type of suicide is that of the older man without children who is recently divorced. The third category of suicide according to Durkheim's theory is the "anomic" suicide, where the individual's relationship to society is suddenly disrupted, such as when a person unexpectedly loses a job. "Fatalistic" suicides, the fourth type described by Durkheim, occur when individuals lose control over their own destiny, such as the mass suicide that occurred on Masada (Schneidman 1979).

Psychological explanations of suicide were first developed by Freud. Whereas Durkheim conceptualized the explanation of suicide in terms of societies' influences on the individual, Freud (1917) postulated that the reasons for suicide were intrapsychic. In his work *Mourning and Melancholia*, Freud (1917) theorized that suicide represents unconscious hostility aimed at the introjected (ambivalently viewed) love object. For Freud, suicide was viewed as "murder in the 180th degree" (Schneidman 1979).

In 1936, Zilboorg proposed a cultural-ethnological model that suggested that people at highest risk for suicide unconsciously identified with a dead person and wished to be reunited with him or her. Bender and Schilder (1937) hypothesized that suicidal behavior in children represented an attempt to escape unbearable family situations, such as being the victim of child abuse. Other psychoanalysts have extended Freud's perspective. In his book *Man Against Himself*, Menninger (1938) described the psychodynamics of hostility, formulating that the hostile drive in suicide had three components: 1) the wish to kill, 2) the wish to be killed, and 3) the wish to die (Schneidman 1979). Interpersonal theorists, including Sullivan, Horney, and Fromm, rejected Freud's drive theory and stressed the importance of the social and cultural context affecting the individual in understanding suicidal behavior. Object-relations theorists further extended the psychoanalytic formulation of suicidal behavior, suggesting that suicidal acts represent a developmental failure to negotiate the transition from the symbiotic phase of attachment to mother to the separation/individuation phase (Kohut 1977). Kohut (1977) suggests that self-destructiveness is often precipitated by failures that elicit intense feelings of shame. The suffering ego attempts to do away with the self in order to erase the disappointing reality of failure. The products of narcissistic injury (i.e., fragmentation and narcissistic rage) lead to self-destructive acts. Kernberg (1984) describes three types of self-destructive patients: the borderline whose self-mutilation is a means of

control over inner chaos; the pathological narcissistic who is at extremely high risk because of grandiosity that is particularly vulnerable to trauma and heightened by aggression; and the patient with psychotic features whose suicide attempt corresponds to autistic fantasies about bodily or psychological transformation.

Other contemporary theorists have examined the role of additional emotional states, such as hopelessness (Beck 1986; Beck et al. 1974a, 1974b, 1975a, 1975b, 1979, 1985) and helplessness (Seligman 1975), in the pathogenesis of depression and suicide. Beck related the “negative triad” of depression to suicide in that the individual’s thinking when depressed becomes distorted: the person has a negative view of him- or herself, the future, and the world (Beck 1986; Beck et al. 1974a, 1974b, 1975a, 1975b, 1979, 1985).

Asch (1980) has stressed the dyadic nature of suicides; that is, the suicidal act often occurs in relationship to another person and often times transfers the pain to the survivor. Adam (see Chapter 3, this volume) has proposed an attachment model for understanding suicidal behavior that posits that suicidal people are more sensitive to threats of separation and abandonment. He suggests that early deficiencies in parental care are predisposing factors to suicidal behavior; that current threats to attachment figures are precipitating factors; and that associated mental illness and alcohol/drug abuse are contributing factors that allow pathological attachments to be unmasked.

Another way of explaining suicidal behavior has been the philosophical or existential. Camus (1959) wrote in *The Myth of Sisyphus* that the most important task of man was to respond to life’s apparent absurdity, meaninglessness, and despair. Other philosophers, including Hume, Sartre, Heidegger, Kant, and Nietzsche, have considered suicide to be a primary ethical problem for man (Schneidman 1979).

Over the past two decades, another model for understanding suicide has emerged: one that focuses on the biomedical aspects of self-destruction, emphasizing its relationship to psychiatric illness, familial and genetic factors, and biological abnormalities. It is my view that an overlap model incorporating the psychobiological contributions of all of these explanatory models and factors is the most comprehensive and useful framework for understanding suicidal behavior over the life cycle.

THE OVERLAP MODEL: RISK FACTOR DOMAINS FOR SUICIDAL BEHAVIOR

Five domains of risk factors—psychiatric diagnosis, personality traits and disorders, psychosocial and environmental factors, genetic and

familial variables, and biochemical factors—comprise a theoretical overlap model for understanding suicidal behavior over the life cycle (Blumenthal and Kupfer 1986a). It is suggested that these five domains, organized as a matrix or multiaxial approach, provide a simple model for considering risk factors for suicide that can assist the health care professional in formulating clinical interventions as well as benefit researchers.

This overlap model of risk, shown graphically in Figure 1 as a series of interlocking Venn diagrams, represents an important alternative to notions of final common pathways or single explanatory schemas (Blumenthal and Kupfer 1986a). These risk-factor domains for suicide appear to operate across the life cycle for all age groups (see Vaillant and Blumenthal, Chapter 1, this volume). They represent not just risk factors, but also spheres of vulnerability. The overlap model posits that the presence of contributory factors from each of these domains increases the risk for suicide and helps explain why only certain patients suffering from particular psychiatric disorders at-

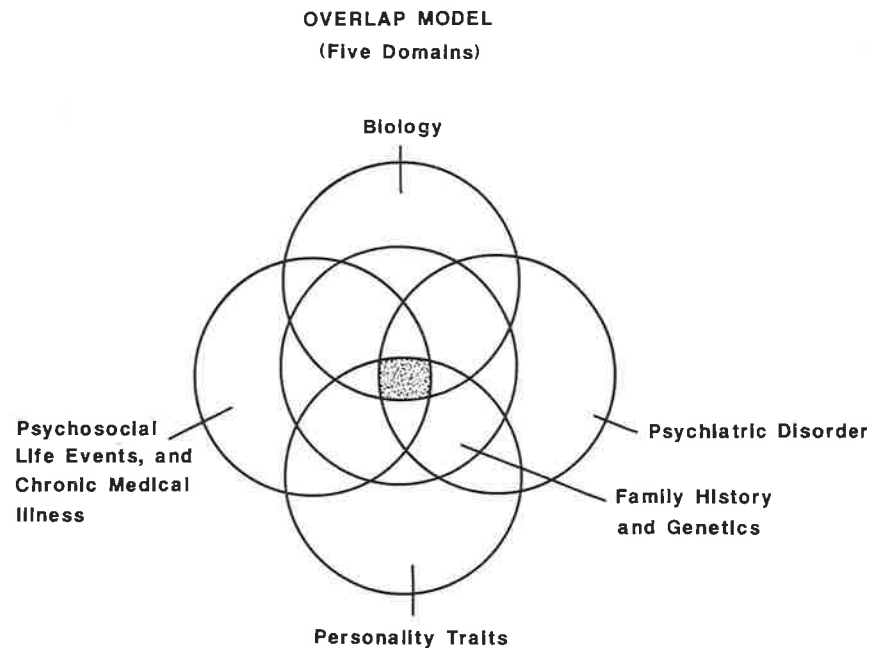


Figure 1. Overlap model for understanding suicidal behavior. Reprinted from Blumenthal SJ, Kupfer DJ: Generalizable treatment strategies for suicidal behavior. *Annals of the New York Academy of Sciences* 487:327–340, 1986, with permission from the New York Academy of Sciences.

tempt or complete suicide. For example, in applying this model, the loss of a job might be a final humiliating experience that triggers a depressive episode in a person with a family history of affective disorder. Such an individual may also be very impulsive, have poor social supports, and abuse alcohol. These factors then interact with the other identified risk factors to increase the individual's vulnerability for suicide. However, what remains to be determined is at what level and in what degree do each of these factors contribute to suicide potential. Is it the degree of overlap of all of the factors that is most significant? It is known, for example, that 15% of people who suffer from an affective disorder end their lives by suicide, but this of course means that the other 85% do not. The reasons for this phenomenon might be explained by application of the overlap model. Using this model, what may emerge, for example, is that the subgroup of patients with affective disorder who commit suicide have a greater overlap of other risk domains, such as increased hopelessness, impulsivity, decreased social supports, certain biological abnormalities, a recent humiliating life experience, and/or an increased family history of affective disorder or suicidal behavior (Blumenthal and Kupfer 1986a).

As mentioned previously, there are five domains that comprise this risk factor model. The first is a *careful clinical description according to psychiatric diagnosis*. More than 90% of adults who end their lives by suicide have an associated psychiatric illness (Barraclough et al. 1974; Black and Winokur, Chapter 6, this volume; Dorpat and Ripley 1960; Hagnell and Rorsman 1980; Robins 1981; Robins et al. 1959). The few studies on adolescent suicide suggest high percentages as well (Crumley 1982b; Shaffer 1974; Shaffer et al. 1985; Shafii et al. 1985, 1988). Current research shows that affective disorders and substance abuse in adults and conduct disorders and depression in young people are the most highly associated psychiatric diagnoses with suicide. Second, *personality traits* relating to suicide, such as aggression, impulsivity, and hopelessness, are important in and of themselves in characterizing suicide since they may represent personality styles that cross diagnostic groupings. In addition, this domain includes certain *personality disorders*, such as borderline personality and antisocial personality disorders, which are more highly correlated with suicidal behavior and represent risk factors. The comorbidity (or co-occurrence) of antisocial and depressive symptoms appears to be a particularly lethal combination in both adults and young people (Blumenthal and Kupfer 1986b, 1988; Frances 1986; Frances and Blumenthal 1986; Goldsmith et al., Chapter 7, this volume). The third domain is concerned with *psychosocial factors, social supports, life events, and chronic medical illness*. For example, early loss, increased negative

life events, the presence of a chronic medical illness, exposure to suicide (both intra- and extrafamilial), and decreased social supports increase the risk for suicide. (see Adam, Chapter 3; Mackenzie and Popkin, Chapter 9, this volume). In addition, most people who end their lives have had a recent humiliating life experience (Blumenthal 1988; Blumenthal and Kupfer 1986a; Hirschfeld and Blumenthal 1986). The fourth area is the identification of both *genetic and familial factors* that predispose an individual to suicide. Investigators have suggested that the genetics of suicide may be independent of the genetics of having a family history relating to specific psychiatric disorders, such as affective disorder or alcoholism (Kety 1986; Kety, Chapter 5, this volume; Roy 1983, 1986a; Schulsinger et al. 1979; Tsuang 1977). The final domain in the overlap model are the *neurochemical and biochemical variables* currently under active investigation in an attempt to identify either a biological abnormality or a vulnerability state for suicide. In particular, a deficiency in the neurotransmitter serotonin appears to be associated with aggressive, violent suicidal behavior across psychiatric diagnoses (Ågren 1980; Åsberg et al. 1976, 1981, 1984, 1986a, 1986b; Brown and Goodwin 1986; Brown et al. 1982a, 1982b; Mann et al. 1986; Ninan et al. 1984; Orelund et al. 1981; Stanley et al. 1986; Traskman et al. 1981; Winchel et al., Chapter 4, this volume).

In summary, the following discussion of the five risk-factor domains for completed suicide over the life cycle should provide the clinician with a rubric for the early detection of suicidal behaviors. Other chapters in this volume provide the reader with an in-depth exploration of the issues raised here. The clinician, knowledgeable of the factors in these domains, will be well equipped to assess suicidal patients of all age groups and to intervene and treat these patients in his or her clinical practice.

Psychiatric Diagnosis

The risk for suicidal behavior and suicide is increased with almost every major psychiatric disorder (Barraclough et al. 1974; Black and Winokur, Chapter 6, this volume; Blumenthal 1988; Borg and Stahl 1982; Dorpat and Ripley 1960; Hagnell and Rorsman 1980; Khuri and Akiskal 1983; Miles 1977; Morrison 1982; Pokorny 1964; Robins 1981; Robins et al. 1959). Evidence from psychological autopsy studies of adult suicides (Barraclough et al. 1974; Dorpat and Ripley 1960; Hagnell et al. 1981; Robins 1981; Robins et al. 1959) and adolescent suicides (Brent and Kolko, Chapter 11, this volume; Crumley 1982b; Shaffer 1974; Shaffer and Fisher 1981; Shaffer et al. 1985, 1988; Shafii et al. 1985, 1988) reveal that most people who commit suicide were suffering from a major psychiatric illness at the time of their death,

although only a small percentage were being treated (Robins 1981; Robins et al. 1959; Shaffer et al. 1985; Shafii et al. 1985). As mentioned earlier in this chapter, these studies reveal that more than 90% of people who end their lives by suicide suffered from a psychiatric disorder; less than 10% of people who kill themselves have no documentable psychiatric illness (Barraclough et al. 1974; Blumenthal 1988; Dorpat and Ripley 1960; Hagnell and Rorsman 1980; Robins et al. 1959). Affective disorders followed by alcoholism are the major psychiatric diagnoses associated with suicide in adults (Barraclough et al. 1974; Dorpat and Ripley 1960; Hagnell et al. 1981; Robins 1981; Robins et al. 1959; Winokur and Black 1987).

Suicide is the most serious and tragic complication of affective disorders, with 15% of those suffering from these illnesses ending their lives by suicide (Black and Winokur 1986; Guze and Robins 1970; Kerr et al. 1969; Miles 1977). More than 10 million Americans suffer from depressive disorders. One-quarter of all women and 10% of men in the United States will suffer from a clinical depression at some time in their life. Suicidal thoughts and plans are often symptoms of major depression, and treatment of the illness should be associated with remission of suicidal ideation in most people (see Brent and Kolko, Chapter 11; Goldblatt and Schatzberg, Chapter 15, this volume). Other symptoms include a sad mood and the persistence and clustering of several other complaints for greater than a 2-week period, including appetite changes, sleep disturbance, psychomotor agitation or retardation, loss of interest or pleasure in usual activities, loss of energy and fatigue, feelings of worthlessness, self-reproach, or excessive or inappropriate guilt, difficulty concentrating, and hopelessness. In children and adolescents, the symptoms of depression are quite similar, but, in addition, young people often have vague somatic complaints, school problems, low self-esteem, and "acting out" of aggressive behaviors. In elderly patients, depression may present with memory changes, confusion, and profound social withdrawal.

The clinician should be aware that specific subtypes of affective disorder have differential influences on prognosis and treatment (Blumenthal 1988; Brent et al. 1988a; Fawcett et al. 1987; Jamison 1986). Patients of all ages who suffer from hypomania or mania are at particularly high risk for suicide and suicidal behavior (Avery and Winokur 1978; Brent et al. 1988a; Jamison 1986; Johnson and Hunt 1979; Stallone et al. 1980) as are those patients with a mixed state (cycling between depression and mania), particularly at the time of the switch (Fawcett et al. 1987; Jamison 1986). One study of adolescent suicides found that one-fifth of the victims had a diagnosis of bipolar disorder (Brent et al. 1988b). Brent et al. (1988a) suggested that the association between suicide and bipolar affective disorder may contribute to the seasonality of suicide rates (highest in April-May and

September-October) (Lester 1971; Nayha 1983; Parker and Walter 1982; Zung and Green 1974), perhaps corresponding to the seasonal patterns of bipolar illness (Brent et al. 1988; Parker and Walter 1982). They further hypothesized that the seasonality of suicide rates may also be related to another type of affective disorder known as seasonal affective disorder (Rosenthal et al. 1984), which is characterized by hypersomnia, hyperphagia, and a depressive syndrome in the winter months, which can be treated by phototherapy. The clinician is advised to take a careful menstrual history, since it has been reported that affective disorder is exacerbated premenstrually (Abramowitz et al. 1982; Blumenthal 1988; Halbreich and Endicott 1983; Osofsky and Blumenthal 1985) and that suicidal behavior in women is increased during this period (Brent et al. 1988; Fourestié et al. 1986; Osofsky and Blumenthal 1985). Furthermore, patients who suffer from psychotic depression have a five times greater risk for completed suicide than nonpsychotic depressed patients (Roose et al. 1983). Studies have suggested that the risk for suicide may be related to the delusional component of the illness in these patients as well as to the affective state (Roose et al. 1983).

Additionally, the comorbidity (co-occurrence) of affective disorders with other psychiatric disorders, especially antisocial personality and substance abuse, are particularly lethal combinations in both adults and young people (Blumenthal 1984; Blumenthal and Kupfer 1986a, 1986b, 1988; Frances 1986; Frances and Blumenthal 1989; Rich et al. 1986; Shafii et al. 1985). These patients are especially difficult to treat and have a greater incidence of relapse (Akiskal 1982; Clayton and Lewis 1981; Weissman et al. 1981).

Therefore, the early detection and treatment of affective disorders represents a major prevention strategy for completed suicide (Blumenthal 1984, 1988; Blumenthal and Kupfer 1988; Griest and Griest 1979; Khuri and Akiskal 1983). Treatment of affective disorders includes 1) psychotherapeutic approaches, consisting of psychodynamic, cognitive/behavioral, and interpersonal therapies aimed at decreasing hopelessness and altering the cognitive distortions that may occur; and/or 2) medications, including tricyclic antidepressants, monoamine oxidase inhibitors, lithium, and other somatic treatments such as electroconvulsive shock therapy (Barraclough 1972; Bellack et al. 1981; Blackburn et al. 1981; Brent et al. 1988b; DiMascio et al. 1979; Janicak et al. 1985; Kovacs et al. 1981; Murphy et al. 1984; Rush et al. 1977). Additionally, strengthening social supports, promoting better interpersonal relationships, and providing patient and family education are also important elements of the treatment of depression (Blumenthal 1984, 1988; Blumenthal and Kupfer 1986a; Frank and Kupfer 1986).

Alcohol and substance abuse also represent major risk factors for

suicide across the life cycle in both alcoholic and nonalcoholic populations (see Flavin et al., Chapter 8, this volume). Alcohol use is associated with 25% to 50% of suicides (Barracough et al. 1974; Dorpat and Ripley 1960; Frances et al. 1986; Hagnell et al. 1981; Robins 1981; Robins et al. 1959), and its contribution is second only to that made by affective disorders. Between 5% and 27% of all deaths of alcoholics are caused by suicide (Frances et al. 1986; Murphy 1986), with the lifetime risk for suicide estimated to be 15% (Frances et al. 1986; Guze and Robins 1970; Miles 1977; Murphy 1986). The relationship of suicide and substance abuse in young people is also very significant. Substance abuse has been diagnosed in over one-third of youthful suicide victims both alone and in combination with affective disorder (Brent et al. 1988b; Rich et al. 1986). A recent study of adolescent suicide found that 70% of the victims suffered from alcohol or substance abuse problems (Shafii et al. 1985, 1988). In a study examining differences among 133 consecutive suicide victims under the age of 30 and 150 consecutive suicides over the age of 30, 67% of the younger group were identified as substance abusers as compared to 46% of the older group (Rich et al. 1988). When patients are suffering from alcohol dependence, suicide frequently occurs late in the disease and is often related to rejection or some interpersonal loss as well as to the onset of medical complications of the illness (Barracough et al. 1974; Frances et al. 1986; Miles 1977; Murphy 1986; Rich et al. 1988; Robins 1981; Robins et al. 1959). This is in contrast to affective disorders, where suicide often occurs earlier in the course of the illness (Khuri and Akiskal 1983).

Alcohol and drug abuse can be a complication of other psychiatric disorders, including affective and anxiety disorders, schizophrenia, and certain personality disorders (Brent et al. 1988a). In fact, it is estimated that 60% to 70% of alcoholic patients have an additional psychiatric diagnosis (Frances et al. 1986; Murphy 1986). Additionally, it is likely that substance abuse exacerbates the course of psychiatric illnesses (Brent et al. 1988a; Frances et al. 1986; Murphy 1986; Schuckit 1979) and may predispose to depressive symptomatology. Many patients use alcohol and other drugs to self-medicate. Alcohol may also potentiate other methods of suicide, such as drug overdose. Many victims of single motor car accidents, thought to be suicides, have been drinking. Additionally, chronic alcohol abuse may contribute to the disruption of social relationships, which may increase social isolation (Murphy 1986). Furthermore, the biological effects of chronic alcohol consumption include depression and central serotonergic depletion, both of which are risk factors for suicide (Frances et al. 1986; Murphy 1986; Schuckit 1979).

For drug abusers, where the incidence of suicide is 20 times

greater than that for the general population, the increased incidence of suicide may be related to a depressive reaction to the individual's dismal life circumstances, to certain vulnerable personality traits, to the lack of social supports, or to certain biological factors related to drug use (see Flavin et al., Chapter 8, this volume; Frances et al. 1986). The clinician's ability to prevent suicide in chemically dependent persons is associated with accurate diagnosis and appropriate treatment of the substance abuse and any other concurrent psychiatric disorder as well as mobilizing and strengthening the social supports of these patients (Frances et al. 1986; Murphy 1986; Schuckit 1979).

Schizophrenia, a disease that afflicts 1% of the population, carries with it a high incidence of suicide; 15% of schizophrenic patients end their life by suicide (Johns et al. 1986; Roy 1982b, 1986b). The risk is greatest for those patients who feel hopeless, are suicidal, fear mental disintegration, have made previous suicide attempts, have a chronic relapsing course to their illness, and are not compliant with treatment (Brent et al. 1988a; Drake et al. 1984; Johns et al. 1986; Roy 1986b; Virkkunen 1976). Most schizophrenic suicides are by young males who are unemployed and who had been functioning at a high level prior to the onset of the illness. Many have been suffering from symptoms of akathisia (Brent et al. 1988a; Drake and Ehrlich 1985; Shear et al. 1983). The co-occurrence of alcohol or drug abuse in these patients also contributes to suicidal risk (Alterman et al. 1984; Drake and Cotton 1986; Drake and Ehrlich 1985; Drake et al. 1984; Johns et al. 1986; Negrete et al. 1986). Additionally, there is a high incidence of nonpsychotic depression in schizophrenic patients at the time of suicidal behavior (Drake and Cotton 1986; Johnson 1980; McGlashan and Carpenter 1976; Roy 1986b). Some clinicians report that the addition of antidepressant medication to the treatment regimen may help eliminate suicidal ideation in these patients (Prusoff et al. 1979; Roy 1986b; Siris et al. 1985). It should be emphasized that early intervention and appropriate psychotherapeutic and psychopharmacological treatment are critical to the prevention of suicide in schizophrenic patients. Importantly, attention must also be paid to community interventions that link the patient to treatment and social services as well as to occupational and recreational activities.

For suicides occurring in young people, the diagnostic picture is less clear but bears resemblance to what has been found for adults (see Brent and Kolko, Chapter 11, this volume). A study by Shafii et al. (1985) found that 95% of the adolescent suicide victims had an associated psychiatric disorder. A high percentage of these young people had an affective disorder: 76% had major affective disorder or dysthymia as compared to 28% in the control group. This research also demonstrated that 70% of youngsters who end their lives by

suicide have associated substance abuse, 70% have a history of antisocial behaviors, 65% have "inhibited" personality traits, and 50% have made a previous suicide attempt. Preliminary data from a large ongoing psychological autopsy study of adolescents (Shaffer et al. 1985) suggest that at least one-third of the young people in the study who ended their lives by suicide had an associated conduct disorder and that one-quarter of the sample population were suffering from a depressive disorder. In addition, a high percentage of these youth abused alcohol or drugs. Approximately 50% of these young people had a family history of suicidal behavior. Furthermore, suicide attempts in this age group have likewise been linked to depressive symptoms (Carlson and Cantwell 1982; Chiles et al. 1980; Crumley 1982a, 1982b). Many of these youngsters are angry, impulsive, and recently stressed and have problems with low self-esteem.

The high rates of suicide in older people may reflect an accumulation of risk factors as the individual ages (Vaillant and Blumenthal, Chapter 1, this volume). The actual numbers of suicides in this age group are probably underestimated because older people sometimes end their lives surreptitiously by not eating or by taking prescribed medication in overdose amounts. Depression is prevalent among the elderly as old age may bring with it an accumulation of losses, including loss of spouse, friends, health, status, and a meaningful role in society. Depression may be confused with dementia in this age group with the result that older people may not receive appropriate treatment for their illness. With advances in medical technology, there have been steady increases in longevity; this is sometimes at the cost of maintaining personal dignity, however, with "rational" suicide gaining increased acceptance in some quarters. Additionally, low-cost preventive and treatment services that may have provided the needed interventions to avert premature death may not be readily available to older people.

In summary, certain psychiatric illnesses are strongly associated with an increased risk for suicide across the life span. Almost all persons who commit suicide are suffering from a psychiatric disorder. Additionally, the triad of aggressivity, impulsivity, and depressive symptomatology represents a major contribution to risk for suicide over the life cycle (Blumenthal 1984, 1988; Blumenthal and Kupfer 1986a, 1986b, 1988). The clinician's early detection and treatment of these behaviors and illnesses in patients is an important suicide prevention strategy throughout the life span.

Personality Traits and Disorders

Personality traits and disorders have been found to be important contributory risk factors to suicide across all age groups (see Gold-

smith et al., Chapter 7, this volume). Research studies suggest that antisocial and borderline personality disorders are particularly associated with suicidal behavior in adults (Frances 1986; Frances and Blumenthal 1989). This is true for adolescent suicide as well, where conduct disorders and borderline personality features are highly associated with suicide (Crumley 1981; Frances and Blumenthal 1989; Shaffer 1974; Shaffer and Fisher 1981; Shaffer et al. 1985). Additionally, the co-occurrence of depression with conduct disorder, antisocial personality disorder, or borderline personality disorder across all age groups represents an extremely lethal combination of factors (Blumenthal 1988; Blumenthal and Kupfer 1986a, 1986b, 1988; Frances 1986; Frances and Blumenthal 1989).

Although patients with borderline personality disorder often engage in self-destructive behavior without lethal intent, a substantial number (at least 5% to 10%) do eventually commit suicide (Frances 1986; Frances and Blumenthal 1989). The presence of concurrent major affective disorder and/or substance abuse increases the risk of suicide in these patients (Frances 1986). An estimated 5% of patients with antisocial personality disorder die by suicide, and as many as 46% make suicide attempts (Frances 1986; Miles 1977). Antisocial personality disorder and criminality have been reported as predictors of recurrent suicide attempts (Frances 1986). One-half of these attempts are preceded by a crisis in a significant relationship, involve a nonviolent method, and can be seen as an effort to change other people's behavior. It may be that the 5% of persons with this disorder who complete suicide also have concurrent affective disorder, substance abuse, and/or other personality traits or environmental stressors that increase risk for suicide (Frances 1986).

Research studies of young people who end their lives by suicide point to specific associated personality traits, including the tendencies to be withdrawn, perfectionistic, impulsive, or aloof (Shaffer 1974). Preliminary findings from an ongoing large psychological autopsy study of adolescents (Shaffer et al. 1985) suggest that at least one-third of the young people in the study who committed suicide had an associated conduct disorder, a disorder characterized by and thought to be associated with the development of antisocial personality disorder later in life. In fact, there appears to be a continuum of certain personality traits and disorders associated with suicidal behavior in adolescence, with such behavior in adulthood suggesting stability in some personality characteristic, such as impulsivity and aggressivity, over the life cycle (Frances 1986; Frances and Blumenthal 1989; Robins 1986).

The importance of the relationship of suicide and aggression must be underscored. The study of this association stems originally

from psychodynamic formulations of depression and suicide that emphasize hostility and murderous impulses turned against the self (Frances 1986; Freud 1917). In addition, the personality variables of impulsivity and aggressivity appear to have biological correlates, including evidence of a serotonin deficiency (Ågren 1980; Åsberg et al. 1984; 1986b; Brown et al. 1982a, 1982b; Mann et al. 1986; Ninan et al. 1984; Orelund et al. 1981; Stanley et al. 1986; Traskman et al. 1981).

Other studies of the relationship of specific personality traits and suicide have found suicidal people to be more socially withdrawn, to have more interpersonal difficulties, to exhibit lower self-esteem, and to be less trusting than nonsuicidal individuals (Hirschfeld and Blumenthal 1986). Negativity and the expectation of undesirable events have been repeatedly associated with suicide attempts (Frances 1986). Excessive risk-taking behaviors have also been found in some suicidal persons (Weissman et al. 1973).

The relationship of personality variables to cognitive style has been another focus of suicide research (see Weishaar and Beck, Chapter 17, this volume). In one study (Patsiokas et al. 1979), cognitive characteristics of rigidity, impulsivity, and field dependence characterized a group of suicide attempters as compared to a group of nonsuicidal psychiatric controls, supporting the hypothesis of a cognitive predisposition to attempting suicide. Other research (Neuringer 1974) suggests that cognitively rigid individuals faced with naturally occurring life stress are unable to generate or imagine alternative solutions to their problems; as a result, they are inclined to develop feelings of helplessness and hopelessness, which, in turn, heighten the risk of suicidal ideation and/or behavior. Powerlessness and an external locus of control have also been identified in suicidal populations (Frances 1986). Studies of hysterical traits in people who suicide have yielded conflicting results. To date, there is little evidence to support increased histrionic characteristics in suicide completers (Frances 1986; Frances and Blumenthal 1986).

Another important factor in suicide is *hopelessness*. A study of hospitalized patients with suicidal ideation found that after a 5- to 10-year follow-up period, 14 of the 207 patients in the study committed suicide. Of all the data collected at the time of hospitalization, only results of the Hopelessness Scale (Beck et al. 1974a) and the pessimism item of the Beck Depression Inventory correctly identified 91% of the completed suicides. Taken in conjunction with previous studies showing the relationship between hopelessness and suicidal intent, these findings indicate the importance of the degree of hopelessness as an indicator of long-term suicidal risk across psychiatric diagnoses (Beck 1986; Beck et al. 1973, 1974a, 1974b, 1975a, 1975b, 1979, 1985; Dyer and Kreitman 1984; Wetzel 1976).

In summary, there are specific personality disorders, including antisocial and borderline personality disorders, that are more highly associated with suicide. However, it is most likely the combination of certain personality traits that cut across traditional diagnostic categories (i.e., impulsivity, hopelessness, cognitive rigidity) that are better predictors of suicidal behavior and completed suicide than specific personality disorders (Frances 1986; Frances and Blumenthal 1989).

Psychosocial and Environmental Factors

In addition to the important role of psychiatric diagnosis, personality variables, family history, and biological factors associated with suicidal behavior, it is important for the clinician to consider the critical role of psychosocial, environmental, and specific life events in understanding and preventing suicidal behavior (see Adam, Chapter 3, this volume). Recent bereavement, separation or divorce, early loss, and decreased social supports are all potentially important factors that can affect the lethality of a suicide attempt (Blumenthal 1984, 1988; Blumenthal and Kupfer 1986a, 1986b, 1988; Borg and Stahl 1982; Hirschfeld and Blumenthal 1986; Paykel et al. 1975; Petzel and Riddle 1981). Precipitants of suicidal behavior are generally humiliating life events such as interpersonal discord (particularly the breakup of an important relationship), loss of a job, impending disciplinary crisis, or the threat of incarceration (Blumenthal 1984; Blumenthal and Kupfer 1986a, 1986b, 1988; Cohen-Sandler et al. 1982; Hirschfeld and Blumenthal 1986; Murphy et al. 1979; Paykel 1986; Shaffer 1974). The shame and humiliation for the individual associated with these events is of particular importance in understanding suicide attempts and completions. Situational factors such as a chaotic family life or being the victim of physical abuse also increase the likelihood of suicidal acts if the individual is not removed from these stressors (Hirschfeld and Blumenthal 1986). For older people, who comprise the largest number of deaths by suicide, crises such as death of loved ones, retirement, and one's own physical decline are contributory factors (see Osgood and Thielman, Chapter 13, this volume; Blumenthal 1988). However, the vast majority of older people who are bereaved, depressed, or suffering from medical illness do not end their life by suicide. A history of poor adaptation to life stress, vulnerability to loss and disruptions, loss of mastery and control, and cognitive impairment caused by organic mental disorders are important risk factors that have been identified in suicidal older people (Klerman and Hirschfeld 1979).

Additionally, there is evidence that knowing someone who committed or attempted suicide or exposure to suicide through the media

may render some people, particularly adolescents, more vulnerable to suicidal behavior (Blumenthal 1984, 1988; Bollen and Phillips 1982; Gould, Chapter 19, this volume; Gould and Shaffer 1986; Phillips and Carstensen 1986; Robbins and Conroy 1983; Shaffer et al. 1985; Shafii et al. 1985). This appears to be a particularly important factor in cluster suicides (Robbins and Conroy 1983). Studies have demonstrated that the reporting of a suicide on the front page of newspapers and on multiple television channels increases the rate of suicide for a 9-day period (Phillips and Carstensen 1986). Additionally, television movies about suicide have been associated with an increased rate of suicide shortly after the movies were shown (Gould and Shaffer 1986). However, a recent report analyzing two suicide clusters (Davidson et al. 1989) did not find evidence of direct or indirect exposure to suicide as a significant factor. Risk factors found to be associated with adolescent suicide in these clusters were previous suicide attempts, a previous history of self-mutilatory acts, knowing someone who died violently, violence or antisocial behavior, a history of substance abuse, and recently having broken up with a boyfriend or girlfriend. Interventions aimed at deromanticizing portrayals of suicide in the media so that the likelihood of identification is decreased should help prevent imitation.

The strength of social supports is also an important area to assess in suicidal persons. It has been well documented that the strength and quality of these supports are important in the etiology of psychiatric problems, compliance with treatment (Frank and Kupfer 1986; Haas et al. 1986), and response to treatment regimens (Hogarty et al. 1986; Khuri and Akiskal 1983). Individuals suffering from psychiatric illnesses may be more vulnerable to environmental stressors or to a loss of social support systems. Conversely, recent losses, a humiliating life event, or recent exposure to suicide may precipitate psychiatric vulnerability (Blumenthal 1984, 1988; Blumenthal and Kupfer 1986a, 1986b, 1988; Hirschfeld and Blumenthal 1986).

Although the data base is limited, there is considerable convergence of findings in the area of family and environmental factors in relation to youth suicidal behavior (see Brent and Kolko, Chapter 11, this volume; Hirschfeld and Blumenthal 1986). Adolescents who make suicide attempts are characterized by considerably increased life stress and have had many losses (particularly early loss) and significant changes within the nuclear family as compared with other psychiatrically disturbed youngsters, depressed adolescents, and the general population (Hirschfeld and Blumenthal 1986). They have also had both physical and psychiatric illnesses. Precipitating events are often humiliating and are almost invariably interpersonal problems between the adolescent and his or her parents or peers (Blumenthal

1984, 1988; Blumenthal and Kupfer 1986a, 1986b, 1988; Hirschfeld and Blumenthal 1986). The social and familial background of these adolescents is marked by parental death, divorce, or separation. Adolescents who attempt suicide have a greater number of negative life events; fewer social supports; higher incidence of being abused, running away from home, and having unwanted pregnancies; and fewer personal resources than adolescents who do not (Blumenthal and Kupfer 1986b, 1988; Shaffer et al. 1985, 1988; Shafii et al. 1985, 1988).

Medical Illness. Another important risk factor for suicide across all age groups is the presence of a chronic medical illness (see Mackenzie and Popkin, Chapter 9, this volume). In particular, diseases with chronic debilitating courses are frequent "stimuli" to suicidal behavior (Barraclough et al. 1974; Blumenthal 1984, 1988; Blumenthal and Kupfer 1986a, 1986b, 1988; Brent et al. 1988b; Dorpat et al. 1968; Hirschfeld and Blumenthal 1986; Luscomb et al. 1980; Mackenzie and Popkin 1987; Paykel et al. 1974; Robins 1981; Robins et al. 1959; Whitlock 1986). The prevalence of physical illness in suicides varies from 25% to 70% of cases and appears to be an important contributory cause in 11% to 51% (Barraclough et al. 1974; Dorpat et al. 1968; Mackenzie and Popkin 1987; Robins 1981; Robins et al. 1959; Whitlock 1986). Among those disorders most frequently associated with suicide are cancer, Huntington's chorea, epilepsy, musculoskeletal disorders, peptic ulcer disease, and AIDS (Dorpat et al. 1968; Mackenzie and Popkin 1987; Marzuk et al. 1988; Whitlock 1986; Winokur and Black 1987).

Medical illnesses appear to contribute to suicidal behavior in several ways, including 1) precipitating severe depression and/or initiating or exacerbating a psychiatric illness, or 2) producing an organic mental disorder (e.g., delirium), which leads to perceptual, cognitive, and mood changes that may predispose to impaired judgment, impulsivity, and suicidal behavior. In some cases, the choice to die by suicide may be a rational act where the prospect of suffering and loss of dignity is intolerable. However, research evidence suggests that suicide in the physically ill rarely occurs in the absence of psychiatric disorder (Dorpat et al. 1968; Mackenzie and Popkin 1987; Robins 1981; Robins et al. 1959). Therefore, the physician must carefully evaluate suicidal risk in patients suffering from these medical illnesses in his or her practice. Since the physician will treat many patients suffering from these diseases, a more detailed exploration of the association of these illnesses with suicide will be provided.

The suicide rate in epileptic patients is about four times that of normal controls (Matthews and Barabas 1981). Among patients with temporal lobe epilepsy, the rate is 25 times greater than would be

expected. Epilepsy appears to be one of the medical illnesses capable of causing suicidal behavior without the patient first experiencing a period of severe depression and may be related to a sudden urge to suicide as part of an ictus (Hawton et al. 1980). Conversely, depression may occur postictally, causing some patients to become suicidal. Also, mood-impairing side effects of treatment with phenobarbital may predispose to suicidal behavior in both adults and children (Brent et al. 1988a; Mackenzie and Popkin 1987). Other characteristics of the illness, such as the unpredictable nature of the attacks and certain social restrictions and occupational limitations, may also be contributory factors (Brent et al. 1988a; Hawton et al. 1980; Mackenzie and Popkin 1987; Matthews and Barabas 1981).

Cancer has been associated with increased rates of suicide in several reports (Campbell 1966; Dorpat et al. 1968; Louhivuori and Hakama 1979; Mackenzie and Popkin 1987; Whitlock 1986). The cancer prevalence in suicide victims has been shown to be several times higher than in the general population (Campbell 1966; Dorpat et al. 1968; Louhivuori and Hakama 1979; Mackenzie and Popkin 1987; Whitlock 1986). The risk appears to be highest immediately following diagnosis and in those people receiving chemotherapy (Fox et al. 1982; Louhivuori and Hakama 1979; Mackenzie and Popkin 1987; Whitlock 1986). While suicide in people suffering from malignancies may in part be related to having a potentially terminal, painful illness requiring prolonged and difficult treatment (Siegel and Tuckel 1984-85), there may also be additional explanations, including the association of other risk factors for suicide with specific types of cancer (e.g., the association of alcohol abuse with gastrointestinal carcinoma) (Brent et al. 1988a; Louhivuori and Hakama 1979; Whitlock 1986). Some cancers, such as pancreatic tumors, are associated with depressive symptoms before overt signs of the medical disease are apparent (Brent et al. 1988a). Additionally, people with a severe and morbid fear of cancer are also at increased risk (Dorpat et al. 1968; Mackenzie and Popkin 1987; Whitlock 1986).

Other medical illnesses also are associated with an increased risk of suicide. The high rates of peptic ulceration among people who commit suicide are probably related to the prevalence of alcoholism as a cause of ulceration and gastritis (Knop and Fisher 1981; Viskum 1985; Whitlock 1986). Patients who have had surgery for their illness have higher rates of suicide (Mackenzie and Popkin 1987; Whitlock 1986). Additionally, there is a sixfold increase in the rate of suicide among people suffering from Huntington's chorea and in family members who do not yet have overt symptoms of the disease as compared to the general population (Dewhurst et al. 1970; Mackenzie and Popkin 1987; Whitlock 1986). Patients undergoing renal dialysis

often experience depression, and reports have shown a 10- to 100-times greater incidence of suicide in these patients as compared to rates for the general population (Mackenzie and Popkin 1987; Whitlock 1986). This may be explained in part by the loss of pleasure experienced by some patients on renal dialysis, the diminished quality of life, the dependency on a machine for survival, the associated depression, and the higher age of patients receiving the treatment (Brent et al. 1988b). There is also evidence of increased rates of suicide in people who have suffered spinal cord injuries and in patients who have multiple sclerosis (Mackenzie and Popkin 1987). Cushing's disease, thyroid disorders, and hyperparathyroidism are endocrinopathies that may be complicated by severe depression and, if not diagnosed and treated, may result in suicidal behavior.

Acquired immune deficiency syndrome (AIDS) is a fatal and incurable illness characterized by a profound disturbance in the immune system. There is evidence that suicide may be increased in people suffering from this illness. A study revealed a 36 times greater incidence of suicide in AIDS victims than in the general population (Marzuk et al. 1988). To date, there have been more than 100,000 deaths from AIDS, and it is estimated that 1.5 to 2.0 million persons in the United States are infected with the human immunodeficiency virus (HIV). Depression frequently accompanies the disease, and, in some cases, psychiatric symptomatology and cognitive disturbances are the first signs of illness. Evidence exists that AIDS directly invades the brain. AIDS dementia complex, a syndrome characterized by progressive cognitive and motor impairment, occurs in more than half of AIDS patients and, for 10% to 20% of the patients, may be the presenting manifestation of the disease. Given the high incidence of depression, dementia, and extreme debilitation associated with AIDS along with the disruption in social supports that may accompany the illness, it can be understood why patients suffering from this illness are at increased risk for suicide.

The clinician should also be alert for the onset of depressive symptoms with possible suicidal behavior in medically ill patients being treated with certain medications. Antihypertensive medications such as propranolol and reserpine have been associated with depression. Steroids also can produce depressive or manic symptoms (Mackenzie and Popkin 1987; Whitlock 1986). Other drugs that may produce severe mood changes include antiparkinsonian agents such as levodopa, exogenous hormones, anticancer drugs, and antituberculin agents. The clinician should administer doses of these medications that keep psychiatric side effects to a minimum and be sure to change drugs if severe symptomatology persists.

Studies of the relationship of medical illness and suicide suggest

that severe or incapacitating medical status when associated with depression, alcoholism, organicity, and neurological impairment are important contributing factors leading to diminished judgment and increased impulsivity in medically ill patients (Mackenzie and Popkin 1987).

As mentioned earlier in this chapter, most people who commit suicide have seen a health care professional shortly before their death. It must be assumed in these cases that the psychiatric state of the patient was not adequately assessed or the impact of the illness not fully appreciated. The clinician then must carefully evaluate suicidal risk in chronically ill patients and be aware of the psychiatric side effects of medications prescribed. Attention to these factors will help prevent patient suicides.

In summary, there are a number of important psychosocial factors, including suffering from a medical illness, that operate as contributory weights in the overlap model of suicidal behavior, helping to explain individual differences across high-risk groups.

Family History and Genetics

A family history of suicide is a significant risk factor for suicide (see Kety, Chapter 5, this volume). Explanations for this association include identification with and imitation of a family member who has committed suicide, family stress or contagion, transmission of genetic factors for suicide, and transmission of genetic factors for psychiatric disorders such as affective disorders (Blumenthal 1984, 1988; Blumenthal and Kupfer 1988; Kety 1986; Murphy and Wetzel 1982; Roy 1983, 1986a; Schulsinger et al. 1979; Tsuang 1977, 1983; Zaw 1981). Lines of evidence for these findings come from several types of research, including twin and adoption studies, studies of familial risk, and epidemiologic research. For example, a study of psychiatric inpatients revealed that 1) half of the persons with a family history of suicide had attempted suicide themselves, and 2) more than half of all patients in this study with a family history of suicide had a primary diagnosis of affective disorder (Roy 1982a, 1983). In another study, a greater incidence of suicide was found in the relatives of psychiatric patients who committed suicide than in the relatives of the control group (Zaw 1981). An investigation of suicide in the general population found that 6 of 100 suicide completers also had a parent who committed suicide. This rate was 88 times higher than predicted (Farberow and Simon 1969). A study of the Amish, a religious group with a 100-year history of nonviolence, no alcohol or drug abuse, a high degree of social cohesion, no divorce or family dissolution, and a philosophy of suicide as the ultimate sin, has demonstrated, quite

unexpectedly, that suicides do occur among this group (Egeland and Sussex 1985). Between 1880 and 1980, 26 suicides were documented among the Amish of southeastern Pennsylvania; 24 of the 26 individuals who committed suicide were diagnosed with a major affective disorder, with the suicides occurring in four primary pedigrees. This research further suggests possible genetic factors in both the transmission of affective disorders and suicide.

Other investigations have suggested a high concordance rate for suicide in twins. A Danish study of monozygotic twins found that in 20% of the cases in which one twin was a suicide, the other twin had also died by suicide (Hendin 1986). Additionally, a review of 149 twin pairs, of whom 60 were identical and 98 were fraternal, found that nine sets of identical twin pairs were concordant for suicide, whereas none of the fraternal twins both died by suicide, again suggesting a genetic component to suicidal behavior (Haberlandt 1965, 1967). In a major Danish adoption study comparing the incidence of suicide in the biological and adoptive relations of adoptees who killed themselves, a six times greater incidence of suicide was found in the biological relatives of adoptees who committed suicide than in their adoptive relatives as compared to adoptee controls (Schulsinger et al. 1979).

These studies suggest that we may be able to separate out the contribution of a family history of suicide and a family history of affective disorder to isolate high-risk groups for both research and clinical purposes. Issues of family history and genetic factors are complicated not only by concordance for psychiatric diagnoses in families but also by the environment in terms of identification and imitation of suicidal behavior by family members over long periods of time (Blumenthal and Kupfer 1986a).

Biochemical Factors

Recent biochemical investigations of suicidal behavior have shown that some suicide victims and violent suicide attempters have a deficit in the functioning of a brain neurotransmitter, serotonin (see Winchel et al., Chapter 4, this volume). There have been a number of studies measuring 5-hydroxyindoleacetic acid (5-HIAA), a serotonin metabolite, in the cerebrospinal fluid (CSF) and serotonin and imipramine binding in the brains of suicide victims, which appear to confirm this finding (Ågren 1980, 1983; Åsberg et al. 1976, 1981, 1984, 1986a, 1986b; Banki et al. 1985; Brown et al. 1982a, 1982b, Lidberg et al. 1985; Linnoila et al. 1983; Mann et al. 1986; Ninan et al. 1984; Orelund et al. 1981; Stanley et al. 1986; Traskman et al. 1981). Much of this research has emphasized the close association between suicide and the pro-

pensity toward violence, attempting to identify behavioral and biological factors related to suicide that are not specific to any one psychiatric diagnosis. These studies have found a common biochemical association among aggression, impulsivity, and reduced serotonergic function. Furthermore, reduced central serotonergic activity is associated with suicidal behavior, not only when there is a diagnosis of unipolar depressive disorder but also in association with a range of other psychiatric disorders (Brown and Goodwin 1986; Brown et al. 1982a, 1982b). Some studies suggest that the finding of decreased serotonin in violent suicide attempters may increase the risk of completed suicide 10-fold at 1-year follow-up (Åsberg et al. 1976, 1986b). Interestingly, murderers have a suicide rate several hundred times greater than individuals the same age who have not killed anyone (West 1966). Similarly, arsonists, a group with high degrees of aggressivity and impulsivity and low serotonin levels, show a very high incidence of violent suicide attempts (Linnoila et al. 1983).

It should be noted that while low 5-HIAA levels are associated with violent suicide attempts and completions, low 5-HIAA levels are found in patients with diverse psychiatric illnesses and also in groups of normal controls (Banki et al. 1981; Brown and Goodwin 1986; Brown et al. 1982a, 1982b). Also, an increased incidence of depressive illness has been found in the relatives of both patients and normals with decreased CSF 5-HIAA levels (Roy-Byrne et al. 1983; Sedvall et al. 1980; van Praag 1982). Although the serotonergic data represent the most compelling current evidence for a biological correlate of suicidal behavior, other biological factors (i.e., neuroendocrine and neurophysiologic) are also being actively investigated (Koscis et al. 1986; Meltzer and Arora 1986). One recent study found reduced binding of corticotropin-releasing factor (CRF) in the frontal cortex of suicide victims (Nemeroff et al. 1988). This finding is consistent with the hypothesis that CRF is hypersecreted in depression, with resultant receptor down-regulation. Some studies have also indicated a relationship between specific maternal and perinatal factors such as hypoxia at birth and eventual adolescent suicide (Salk et al. 1985). These biological findings offer the promise of new pharmacological detection and treatment methods for suicidal behavior.

ASSESSMENT AND TREATMENT OF THE SUICIDAL PATIENT

In the assessment and treatment of the suicidal patient, the clinician will translate knowledge about the risk factors for suicide into a coherent plan for the careful evaluation and clinical management of suicidal patients over the life cycle. The health care professional will then target interventions to the various risk domains he or she has

identified to be operating in a particular patient (Blumenthal 1984, 1988; Blumenthal and Kupfer 1986a, 1986b, 1988).

Assessment of the Suicidal Patient

The suicidal patient may present with many different clinical signs and symptoms. Mood disturbances are frequently present and so are somatic complaints. These may take many forms, from a request for a physical exam, complaints of fatigue, weight loss, and insomnia, to specific physical symptoms, including persistent headaches and gastric problems. Oftentimes a suicidal person may present to the doctor with physical complaints for which there is no apparent medical cause. Warning signs of suicide include sudden changes in behavior, including a dramatic brightening of mood after a period of despondency, social withdrawal, impulsivity, excessive risk taking, having multiple "accidents," changes in appetite, sleep disturbances, a humiliating life experience, persistent feelings of guilt, self-reproach and hopelessness, alcohol or drug abuse, loss of interest in usual activities (such as work, school, social, or sports activities), decreased concentration, suicide "talk," making a will, and giving away prized possessions (Blumenthal 1984, 1988). When several of these warning signs persist and cluster, the clinician should be alert to a risk of suicidal behavior in his or her patient.

The health care professional should take a careful medical and psychiatric history, paying specific attention to the mental status exam and the psychosocial history, evaluating the patient for any recent humiliation, losses, life stresses, and substance use or abuse (Table 1). The clinician's interviewing approach will vary depending on whether the patient is a child, adolescent, adult, or person in late life. (Hendren, Chapter 10, this volume).

As in any medical examination, the clinician begins with an exploration of the chief complaint and a review of the present illness, including what brought the patient to the physician's office or to the emergency room. Attention should be paid to any medical problems and medications used. The clinician should perform a physical examination and order any pertinent laboratory tests to rule out medical causes for psychiatric complaints. Empathic, attentive listening on the part of the health care professional is a key element of the assessment.

In performing a mental status examination, the clinician should determine the quality of the patient's mood, the content of his or her thoughts (e.g., whether hallucinations or delusions are present) and whether the patient's speech is pressured or slow. Other areas of inquiry include asking about a history of previous psychiatric problems and the clinical course and treatment of these disorders and

Table 1. Assessing the emotionally troubled patient

Chief complaint
History of present illness
History of past emotional illness
Family history of psychiatric disorder and/or substance abuse
Nonpsychiatric medical history
Evaluation of social support system
Mental status examination
Appearance and behavior
Mood and affect
Speech
Content of thoughts
Mental function
Insight
Judgment
Physical examination
Laboratory tests

determining whether a family history of affective disorders, substance abuse, and suicidal behavior is present. Contrary to popular lore, directly questioning the patient about suicidal thoughts and plans will not result in the patient taking suicidal actions. Rather, most people who have come to the doctor thinking about suicide wish to be rescued and stopped from carrying out their self-destruction. Most patients will experience relief when the clinician inquires about these feelings. Explicit questions about suicidal ideation, plans, attempts, suicide notes, putting one's business affairs in order, and giving away prized possessions must be asked in a direct and compassionate manner. One of the most important questions to be asked is whether the patient feels that he or she can promise to control his or her behavior and not act on impulses. If the patient cannot do this, immediate psychiatric hospitalization is indicated (Waltzer 1979).

Specific questions aimed at eliciting information about risk factors for suicidal behavior are a critical part of the health care professional's evaluation of the patient (Hawton and Catalan 1982; Kreitman 1986). The clinician may find the SADS Person Scale useful to evaluate risk (Patterson et al. 1983). Factors the clinician must consider in the assessment of the suicidal patient are listed in Table 2.

Clinical Management of Suicidal Patients

Once the clinician has determined that serious suicidal ideation and/or plans are present, there are several essential components of good

Table 2. Assessment of the suicidal person: Factors the physician must consider in evaluating the patient

Assessing circumstances of an attempt

- Precipitating humiliating life event
- Preparatory actions—acquiring a method; putting affairs in order; suicide “talk”; giving away prized possessions; suicide note
- Use of violent method or more lethal drugs/poisons
- Understanding of lethality of chosen method
- Precautions taken against discovery

Presenting symptoms

- Hopelessness
- Self-reproach; feelings of failing and unworthiness
- Depressed mood
- Agitation and restlessness
- Persistent insomnia
- Weight loss
- Slowed speech, fatigue, social withdrawal
- Suicidal thoughts and plans

Psychiatric illness

- Previous suicide attempt
- Affective disorders
- Alcoholism and/or substance abuse
- Conduct disorders and depression in adolescents
- Early dementia and confusional states in the elderly
- Combinations of the above

Psychosocial history

- Recently separated, divorced, or bereaved
- Lives alone
- Unemployed; recent job change or loss
- Multiple life stresses (move; early loss; breakup of important relationship; school problems; threat of disciplinary crisis)
- Chronic medical illness
- Excessive drinking or substance abuse

Personality factors

- Impulsivity, aggressivity, hostility
- Cognitive rigidity and negativity
- Hopelessness
- Low self-esteem
- Borderline or antisocial personality disorder

Family history

- Family history of suicidal behavior
- Family history of affective disorder and/or alcoholism

clinical management, which will be discussed in greater detail. Interventions should be targeted at the entire system in which suicidal behavior occurs—that is, for the individual patient, the family, and

the community, where possible. They include psychological and/or medical components as well as environmental interventions, including detoxification of the home, community support, and public health measures (Table 3). The clinician should consider life-cycle issues that impact on the patient and design interventions consistent with these developmental concerns (see Brent and Kolko, Chapter 11; Hendren, Chapter 10; Osgood and Thielman, Chapter 13; Schwartz and Whittaker, Chapter 12, this volume). Most importantly, the clinician must determine if the patient is suffering from a psychiatric illness and is receiving adequate treatment for the disorder that has been diagnosed (see Goldblatt and Schatzberg, Chapter 15; Kahn, Chapter 16; Weishaar and Beck, Chapter 17, this volume). This is a cornerstone to the prevention of suicide.

Table 3. Clinical management of suicidal patients

General points

- Inquire about suicidal thoughts and plans at every visit
- Set up frequent appointments and contact by telephone
- Follow-up missed appointments
- Document positive and negative findings in the chart
- Seek psychiatric consultation when necessary

Psychological aspects

- Establish therapeutic relationship (alliance)
- Allow expression of painful feelings
- Use a flexible, empathic, and supportive therapeutic style
- Provide reassurance and hope
- Rectify cognitive distortions
- Strengthen social supports and interpersonal relationships
- Form a no-suicide contract
- Develop and administer follow-up plan

Medical components

- Importance of symptomatic relief
- Adequate doses
- No refills
- Supervision by a relative when possible
- Assess patient compliance
- Obtain serum levels when appropriate
- Pay attention to side effects

Environmental interventions

- Detoxification of the home
 - Close supervision
 - Family therapy
 - Community support
 - Work/school interventions
-

The psychological aspects of clinical management of the suicidal patient are crucial (see Table 3) (see Kahn, Chapter 16; Weishaar and Beck, Chapter 17, this volume). One of the most important factors in the management of the patient is the doctor-patient relationship. The clinician will provide supportive care by allowing the patient to ventilate painful feelings through discussions that help the patient to discover alternatives, to improve interpersonal relationships, and to change negative thinking, refocusing on the future. This can be achieved by listening intently and empathically to what the patient says, by asking pertinent questions that help the patient to share suicidal feelings, and by the provision of hope. The clinician's therapeutic style must be flexible and supportive during this time, providing the patient with reassurance. This is *not* the time for a more distant approach. The health care professional must communicate to the patient that he or she cares. The medical practitioner or designated substitute should be available around the clock to maintain frequent contact with the patient, through office visits and by telephone. This provides an important lifeline to a source of help for the patient. Through repeated telephone contacts at moments of crisis when the patient fears loss of control, the clinician helps the patient recognize the difference between the experiencing of an impulse and the carrying out of an act (Waltzer 1979). Psychosocial interventions during this crisis period should focus on ameliorating the cognitive distortions that accompany depressive illness, helping the patient to become more flexible and hopeful, and improving interpersonal relationships. Many patients are experiencing a state of hopelessness and cannot imagine any other alternative but suicide. The physician helps the patient to problem solve to find alternative resolutions to the crisis, apart from suicide (see Weishaar and Beck, Chapter 17, this volume).

Additionally, medication can relieve some of the initial suffering that accompanies the biological symptoms of psychiatric illness (e.g., the weight loss, sleep disturbance, cognitive distortions, agitation, and loss of pleasure), giving the patient more energy to explore feelings and to problem solve. The type of medication will be determined by the symptoms and clinical diagnosis (see Goldblatt and Schatzberg, Chapter 15, this volume). When prescribing psychopharmacologic agents, the physician must pay careful attention to 1) providing the patient with information about the drugs and their side effects; 2) making sure that doses are adequate; 3) entrusting the medication to a relative where possible; and 4) prescribing medicine only in small quantities to prevent overdose (i.e., no more than a 5-day supply) and *not* permitting refills without writing another prescription. Careful attention to these details helps prevent tragedies, keeping in mind that many suicidal people end their lives with

medicine prescribed by their doctors. Additionally, attending to these details gives the patient the feeling that the clinician cares, that he or she is taking precautions to keep the patient alive. However, if the situation is extremely precarious, psychiatric consultation or immediate hospitalization may be more appropriate.

The clinician must also pay attention to his or her own feelings and attitudes (countertransference) that can arise in the treatment of suicidal persons (see Kahn, Chapter 16, this volume). Suicidal patients are often difficult to treat and their families can be quite demanding. Initially, the clinician may be seen as the person who can immediately solve *all* problems; when this does not happen, a great deal of anger may come his or her way. Also, families may resist the treatment recommendations. These factors can combine to make the health care professional feel helpless, and when this happens, many clinicians retreat from active involvement or convey negative messages to their patients. Therefore, it is very important that the clinician manage his or her own feelings, reactions, and anxiety generated by working with suicidal patients to ensure the delivery of effective treatment to suicidal patients and their families.

Disposition and Clinical Interventions

There are several options available to the clinician in the management of the suicidal person (see Doyle, Chapter 14, this volume; Smith and Bope 1986). First, the patient presents in crisis. The clinician must gather all the information discussed earlier in this volume in the Section on assessment, formulate a differential diagnosis, and develop a plan for management of the patient's suicidal behavior. Given all of the information gathered from the diagnostic evaluation, the health care professional must decide whether the crisis can be managed in an outpatient setting or whether the patient will need to be hospitalized.

For most acutely suicidal patients (those who have made an attempt or have a serious plan), an inpatient psychiatric hospital unit is the best place to manage the patient. It provides a safe environment, immediate removal from environmental stressors often related to family interactions, and an opportunity for a careful diagnostic workup and intensive psychotherapeutic and psychopharmacologic interventions. Additionally, compliance to the medication regimen can be assessed, the strength of social supports and interpersonal relationships evaluated, and a follow-up plan after discharge constructed. These are all critical reasons to hospitalize a patient on a psychiatric inpatient unit. Sometimes when the patient is acutely suicidal and refuses hospitalization, involuntary commitment may be

When suicidal patients are hospitalized on a general medical or surgical ward where there is less supervision, it is crucial that the patient be protected from jumping from upper-story windows and from falling down open stairwells, since jumping from heights is the most common method of suicide by hospitalized general medical patients (Mackenzie and Popkin 1987; Waltzer 1979). Scissors, razors, and other potentially lethal objects should also be removed and plastic utensils used. Suicidal patients may be quite impulsive, and therefore constant staff supervision is required (Appendix II). The patient's bed should be located close to the nursing station within easy view. Flagging the beds and charts of these patients might help to alert ward personnel (Waltzer 1979). Consultations with the hospital staff and family should be held to deal with their reactions and feelings about the suicidal person and to ensure a consistent approach to the patient (Mackenzie and Popkin 1987; Waltzer 1979). The clinician should pay particular attention to the nurses' notes, which often report the patient's talk of wanting to die or symptoms of depression manifested by crying spells, anorexia, apathy, insomnia, and social withdrawal (Waltzer 1979). When the patient's suicidal risk poses a greater threat than the medical condition, transfer to an inpatient psychiatric unit is indicated (Waltzer 1979).

Some suicidal patients can be managed in an outpatient setting. The clinician will make this decision based on evaluation of the person's absolute risk of suicide, the strength of social support available from family and friends, the patient's wishes, an appraisal of the patient's ability to comply with a treatment plan, the strength of the therapeutic relationship (alliance) between patient and physician, how quickly the patient is responding to treatment, and how available the clinician is for consultation with the patient.

However, management of the suicidal patient almost *always* requires the assistance of a psychiatric consultant and is clearly indicated for all patients who have a serious plan for suicide or who have made an attempt. In the outpatient setting, a psychiatric consultant can be very helpful in refining the psychiatric diagnosis, developing a treatment plan, and providing more intensive psychiatric management of the patient. If necessary, this colleague can also help facilitate hospitalization of the patient. Additionally, the psychiatric consultant provides the patient with essential psychiatric treatment necessary during hospitalization and may also continue to provide psychiatric follow-up after the patient has been discharged from the hospital.

There are some general points that are helpful to remember in managing suicidal patients over the life cycle, and they should be underscored (see Table 3). First, *accurate diagnosis and appropriate treatment for associated psychiatric disorders* is a major prevention strategy for suicidal behavior. Rapid and intensive treatment is particularly im-

portant. Second, the clinician should always *inquire about suicidal thoughts and plans* as a routine part of every diagnostic evaluation and in every visit with a suicidal or depressed person. Third, the clinician should *document in the chart* both positive and negative findings. If the health care professional does not feel comfortable or does not wish, for whatever reason, to explore suicidal risk or to treat the patient, he or she still has the moral and legal obligation to *refer the patient* for psychiatric treatment (Waltzer 1979). When suicides do occur in practice, clinicians may encounter medicolegal difficulties if they have not documented their clinical management of the patient or if they have failed to take action in the presence of clear-cut suicidal intent (see Amchin et al., Chapter 24; Ruben, Chapter 23, this volume). Waltzer (1979) remarked that "failure to take an EKG [electrocardiogram] in the presence of chest pain would be considered an inadequate medical work-up, below the standard of care in medical practice. Similarly, sending a patient home without exploring immediate suicidal potential, and/or making a psychiatric referral for that purpose, would be considered inadequate treatment, below standard acceptable medical care." Fourth, the clinician must strive to *establish a therapeutic relationship* (alliance) with the patient. The strength of this alliance is an important "lifeline" for the patient. Some doctors find the use of a "no-suicide contract" to be helpful. This contract involves an exchange of the patient's agreement to refrain from suicidal actions and a promise that if suicidal thoughts or plans are contemplated, the patient will call the health care professional, for the assurance that the clinician or designated replacement will be available at all times to consult with the patient. Fifth, the clinician must instruct the family to *remove all potentially lethal objects* from the house, including guns, knives, and medications. This removal of a method from the immediate access of an impulsive patient conveys the important message that steps have been taken to help keep the patient alive. Sixth, the clinician should always inquire about the patient's *compliance with medications* and use serum levels when necessary to monitor. Seventh, the clinician should always *immediately follow up missed appointments* with an acutely suicidal person. Clinical experience reveals that suicides often occur during this missed office visit or therapy session. Finally, *consultation* with a psychiatric colleague who has specialty training in the diagnosis and treatment of mental illness is essential and may be particularly helpful in the assessment and management of acutely suicidal persons.

The clinician should also be aware of several important public health interventions that may help prevent suicide (Table 4) (see O'Carroll, Chapter 18; Pardes and Blumenthal, Chapter 25, this volume).

Table 4. Suicide prevention: Public health interventions

Gun control and decreased availability of lethal weapons
Educational campaigns to decrease alcohol and substance abuse
Educational campaigns to increase public awareness about depression and suicide
Deromanticization of the reporting and portrayal of suicides in the media
Community at-risk clinics combining expert clinical assessment and treatment with strong community supports
Development of community response plans
Increased health care professional education through training programs and continuing medical education about diagnosis and treatment of depression and suicidal behavior
Increased insurance benefits for psychiatric disorders and substance abuse

Studies have shown that states that have strict gun control laws have lower suicide rates (Boyd 1983; Boyd and Moscicki 1986; Brent et al. 1987, 1988a; Lester and Murrell 1980, 1982; Markush and Bortolucci 1984). Restricting availability of these weapons and other lethal methods becomes an important suicide prevention strategy (Kreitman 1976). Similarly, alcohol and drug use are associated with as many as 80% of suicides and are particularly important factors in youth suicide (Shaffer et al. 1988; Shafii et al. 1988). Efforts to restrict access to alcohol and other substances of abuse are additional important prevention methods. Intervention strategies including educational campaigns and community involvement to decrease substance abuse are indicated. Additionally, the media have an important role to play in suicide prevention given the evidence that exposure to a suicide through newspapers and television enhances risk (see Gould, Chapter 19, this volume; Gould and Shaffer 1986; Phillips and Carstensen 1986). Portrayals of suicide in television movies must be devoid of romanticization, and reports of suicides in newspapers may best be relegated to back-page news. These interventions should help prevent identification with the victims by vulnerable people. Additionally, the media can make valuable educational contributions through increasing public and health care professional awareness about this major public health problem.

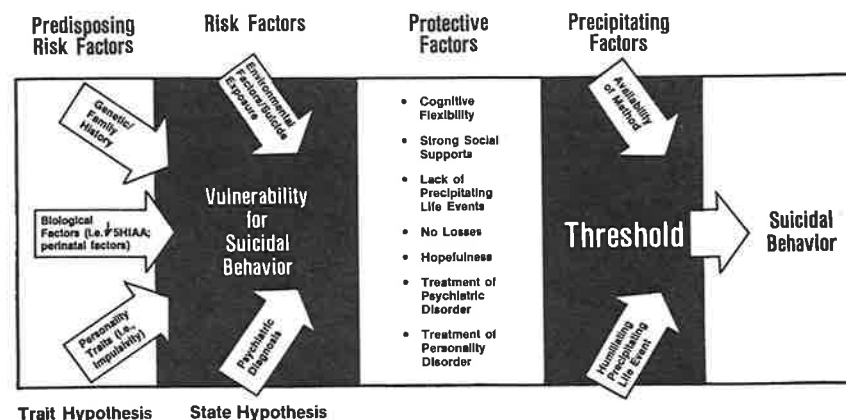
Educational measures and curricula on suicide in the schools require further development and evaluation (Bromet et al. 1985; Shaffer et al. 1988; Pardes and Blumenthal, Chapter 25, this volume). Currently, there is a paucity of knowledge about the effects of school-based education on suicidal behavior (Shaffer et al. 1988). Perhaps the

most sensible approach to suicide education is to integrate teaching about suicide into curricula on general mental health topics, focusing on increasing self-esteem in adolescents and strengthening their coping skills. The development of "at-risk clinics" in communities may also be helpful in preventing suicide. Such clinics might offer expert clinical assessment and treatment combined with strong community links, increased social supports, family education, and hotlines staffed by mental health professionals. Additionally, the development and implementation of a community response plan to suicide is strongly advised before these tragedies occur (see O'Carroll, Chapter 18, this volume). Finally, education of the public and health care professionals is needed to increase knowledge about the warning signs of suicide and intervention strategies. The health care professional has an important role to play in spearheading some of these efforts in his or her community.

CONCLUSION

In this chapter, the risk factors for suicide over the life cycle have been reviewed, providing the reader with a synopsis of the chapters in Section 1 of this volume. Five overlapping spheres of vulnerability for suicidal behavior have been described: psychiatric disorders, personality traits and disorders, psychosocial and environmental factors, genetic and familial variables, and biochemical factors. The point has been underscored that the presence and interaction of several of these domains increase the risk of suicide over the life cycle. Assessment and treatment strategies for suicidal behavior targeted at these risk domains have been discussed. Figure 2 provides a way of applying the overlap model (Figure 1) to a framework the clinician can use for the early detection and treatment of suicidal patients.

In this threshold model for suicidal behavior, certain predisposing factors such as a family history of suicide and biological vulnerability interact with risk factors developed later in life, including having a psychiatric illness (e.g., depression or substance abuse) or exposure to a suicide. When a person with these risk factors undergoes a humiliating life experience and when there is an available method for suicide, the threshold for suicidal behavior may be lowered. However, the presence of certain protective factors, including cognitive flexibility, hopefulness, strong social supports, and receiving appropriate treatment for an associated psychiatric disorder, contribute to maintaining a barrier to suicidal behavior, helping to explain why some people do not become suicidal given certain conditions and why others do. The clinician has an important role to play in the early detection of risk factors for suicidal behavior and in strengthening



—Adapted from Blumenthal, S. J., *Annals NY Academy of Sciences*, 487:327-340, 1986

Figure 2. Threshold model for suicidal behavior. Reprinted from Blumenthal SJ, Kupfer DJ: Clinical assessment and treatment of youth suicide. *Journal of Youth and Adolescence* 17:1-24, 1988, with permission from Plenum Publishing Corporation.

these protective factors in his or her patients. Interventions that target as many risk factor domains as possible, including family treatment, environmental modification, and treatment of the associated psychiatric disorder, will maximize prevention of suicidal behavior by heightening the barriers to suicide.

Clinicians need to be certain that treatment for suicidal patients in their practice includes state-of-the-art psychotherapeutic and psychopharmacologic techniques geared to the treatment of specific psychiatric disorders as well as to suicidal behaviors. This is critical insofar as many psychiatrically ill suicide victims never receive proper treatment. Therefore, the proper identification, assessment, and treatment of psychiatric disorders is a key element in the prevention of suicide. It was mentioned earlier in this chapter that many health and mental health care professionals will evaluate suicidal people in their offices during the weeks when these patients are deciding whether to live or to die. Alarmingly, many of these patients' suicidal thoughts have gone undetected because clinicians have not known or wanted to ask the necessary questions. Waltzer (1979) emphasized that "it is incumbent upon us as clinicians, whenever and wherever possible, to try to avert the patient's carrying out of a suicidal act. If one is to err, then let it be on the safe side, since it is impossible to predict with absolute certainty which individuals will end their lives by suicide. Tragically, mistakes in prediction are irreversible."

Other important components in the clinical management of pa-

tients at high risk for suicide over the life cycle include 1) providing the patient with support and hope; 2) helping the patient to problem solve; 3) actively involving the family to enhance compliance with treatment and to decrease the chance of relapse; 4) using psychiatric consultation and hospitalization appropriately; and 5) restricting the availability of lethal methods (Blumenthal 1984, 1988; Blumenthal and Kupfer 1986a, 1986b, 1988; Brent et al. 1988a; Waltzer 1979). Careful attention must be paid to the patient's environment and support systems. In this regard, a comprehensive follow-up plan is critical to preventing suicide—creating a lifeline and meaningful link for the patient to people who care and who can help in both the treatment and community settings. A final point: it is crucial that curricula in health and mental health care professional training and in continuing education programs contain information about the diagnosis and treatment of psychiatric disorders and complex human behaviors such as suicide.

It is hoped that this review of risk factors for suicide and strategies for assessment and treatment of suicidal behavior over the life cycle will serve as a useful summary of the more detailed chapters in this volume, providing you, the concerned health care professional, with a guiding framework for your efforts to prevent this tragic loss of human life in clinical practice.

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