



*Columbia University
College of Physicians and Surgeons*



*New York State
Psychiatric Institute*

**Department of Child Psychiatry
New York State Psychiatric Institute
Columbia College of Physicians and Surgeons
1051 Riverside Drive
New York, New York 10032
(212) 543-5948**

Teen Suicide

Fact Sheet

David Shaffer, M.D., F.R.C.P., F.R.C. Psych.

Madelyn Gould, Ph.D., M.P.H.

Roger Hicks, M.B.A.

WITH IMPORTANT CONTRIBUTIONS FROM:

Prudence Fisher, Ph.D.

Ted Greenberg, M.P.H.

Amber Kraft, B.A.

Leslie McGuire, M.S.W.

Laura Mufson, Ph.D.

March 14, 2007

EPIDEMIOLOGY

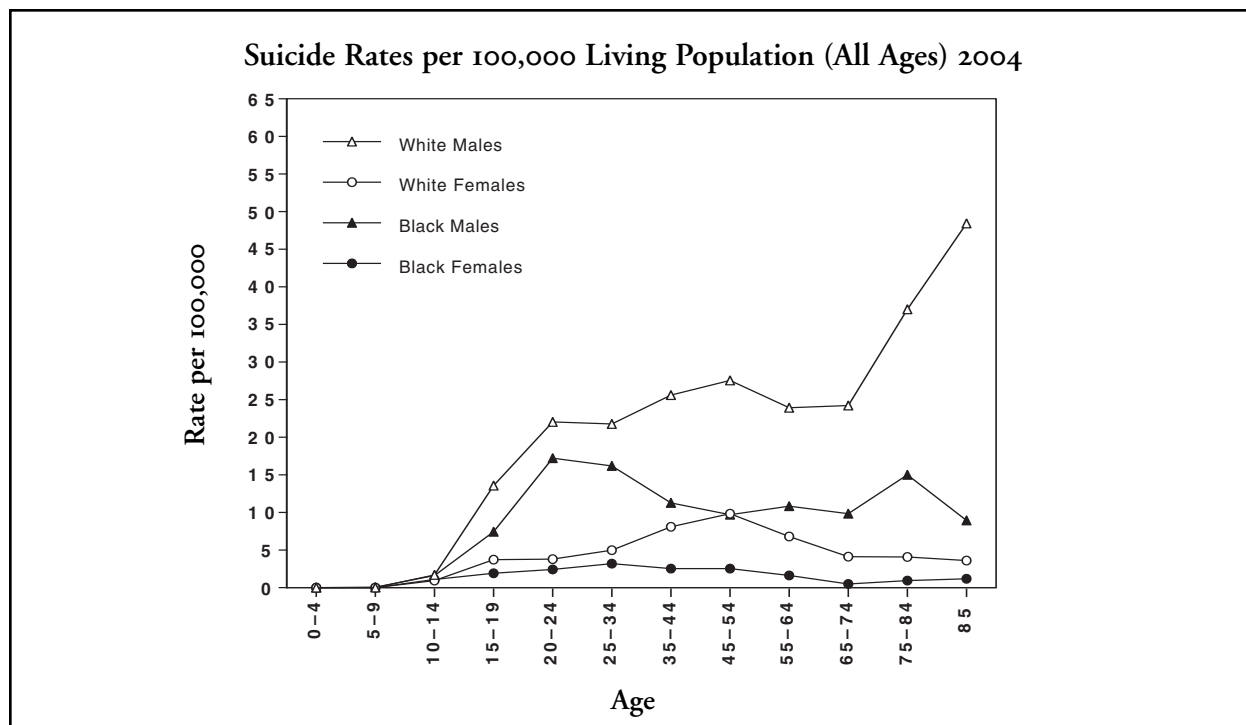
Suicide rates are obtained from official death-certificate data, which are usually published one to two years after the death. *Suicide statistics for your area* can be found on the following Web site: <http://wonder.cdc.gov/mortsq.html>.

TABLE I
U.S. YOUTH SUICIDE RATES IN 2004

AGES	# OF MALES	# OF FEMALES	% OF ALL DEATHS	% OF ALL SUICIDES	MALES	FEMALES	TOTAL
10-14	185	98	7.2%	0.872%	1.71	0.95	1.34
15-19	1,345	355	12.4%	5.241%	12.65	3.52	8.20
20-24	2,251	365	13.3%	8.064%	20.84	3.59	12.47

- Each of the 10- to 14-, 15- to 19-, and 20- to 24-year-old age groups represent approximately 7 percent of the U.S. population. But .87 percent of all suicides occur in the 10- to 14-year-old age group,
- 5.2 percent of all suicides occur in the 15- to 19-year-old age group, and
- 8.1 percent of all suicides occur in the 20- to 24-year-old age group.

FIGURE I



Source: CDC, National Center for Injury Prevention and Control, Office of Statistics and Programming (2006). Web-based Injury Statistics Query and Reporting System (WISQARS). Available at <<http://www.cdc.gov/ncipc/wisqars>>. Accessed December 18, 2006.

AGE

The suicide rate is higher in males and shows more variation with age in males. Before puberty, suicide is equally rare in both genders, but, in males, it increases through the teen years, reaching a level in the early 20s that is maintained until middle age, when, from age 55, it again increases steadily (see Figure 2). The female suicide rate changes little during the lifetime. Suicide before puberty is very rare in all countries, including the U.S. Around 90 percent of suicides in the 10- to 14-year-old age group occur among 12- to 14-year-olds. This might be because of unknown biological processes or because conditions such as depression or the complications of substance and alcohol abuse, both of which are strong risk factors for suicide, are rare before puberty, but become more common through adolescence.

GENDER

- In the U.S., suicide is slightly less than twice as common in males than in females among 10- to 14-year-olds, almost four times more common in 15- to 19-year-olds, and just under six times more common in 20- to 24-year-olds. Gender differences remain high, and, by late middle age, almost all suicides occur among men.

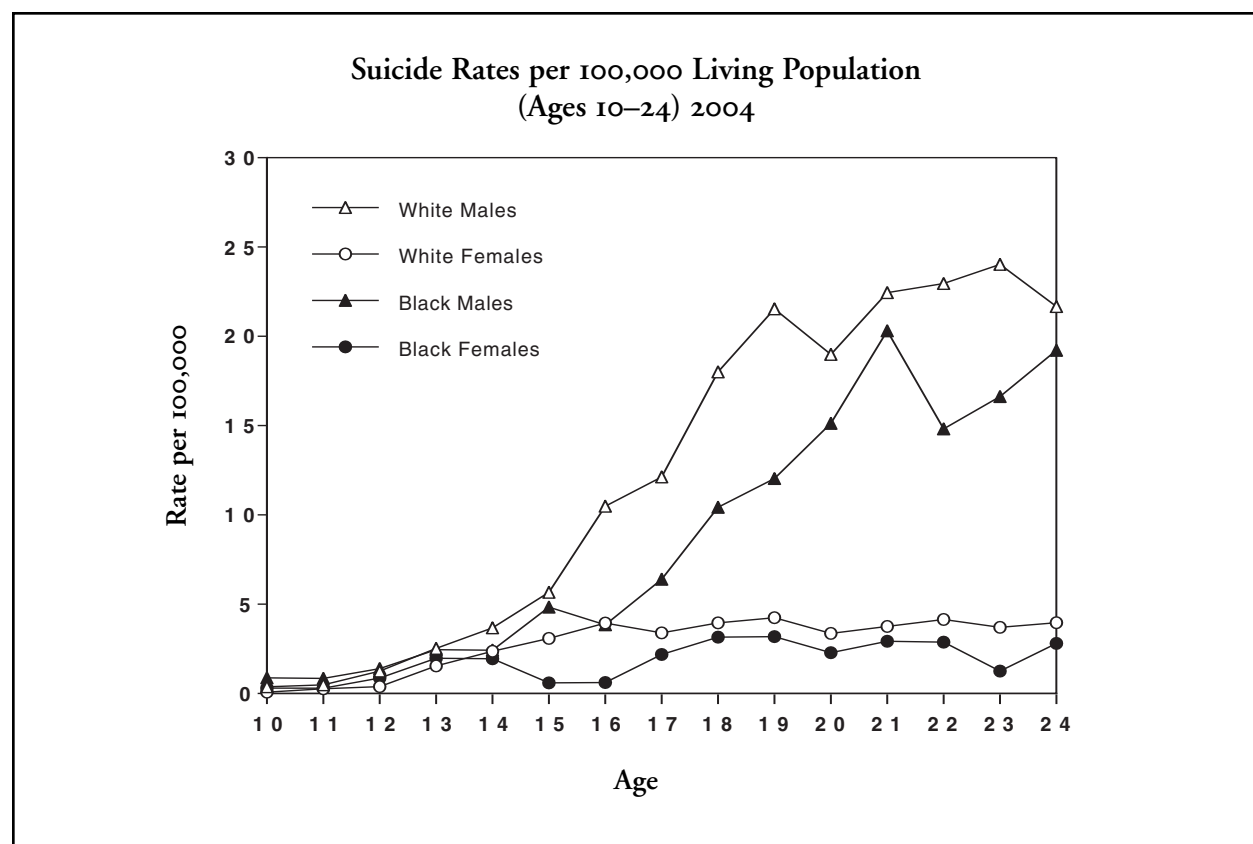
Possible reasons for gender differences are:

- Suicide is often associated with aggressive behavior, which is more common in males.
- Suicide is associated with low levels of serotonin, which is generally lower in males.
- Methods. Regardless of culture, suicidality in women is most often expressed by ingestion whether of prescription medication, OTC analgesics, caustics, herbicides or insecticides. If the ingestion acts slowly and is treatable, intended suicides may become attempts. In Asian countries, ingestions of rapidly lethal herbicides/insecticides are associated with suicide being more common in females than males.

ETHNICITY AND CULTURE

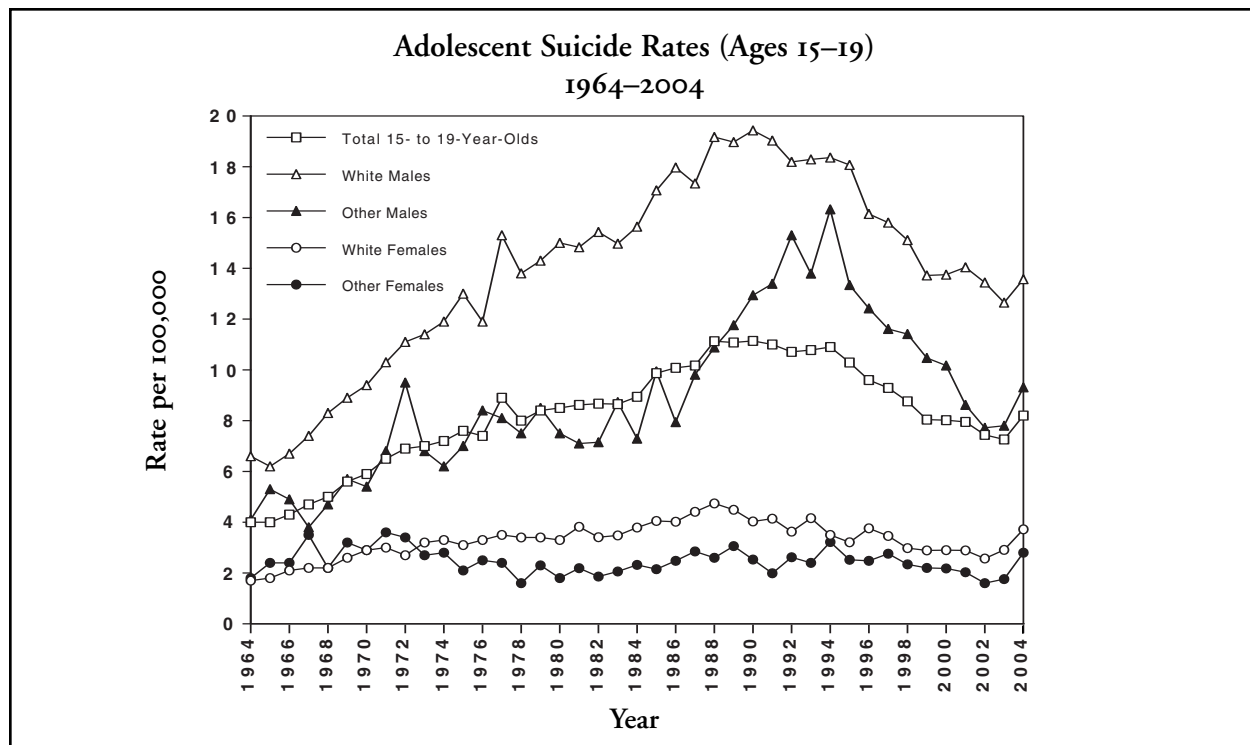
- The U.S. is an ideal setting to examine ethnic and cultural influences within a given country. Since 1980, the first year that detailed racial information was collected, American Indians/Alaska natives have consistently had the highest adolescent suicide rates, followed by whites, but within the groups there are big regional differences. Asians/Pacific Islanders and blacks have the lowest rates at all ages.

FIGURE 2



Source: CDC, National Center for Injury Prevention and Control, Office of Statistics and Programming (2006). Web-based Injury Statistics Query and Reporting System (WISQARS). Available at <<http://www.cdc.gov/ncipc/wisqars>>. Accessed December 18, 2006.

FIGURE 3



The "other" groups include all nonwhites.

Sources: National Center for Health Statistics, Division of Vital Statistics, Mortality Statistics Branch, years 1964–1978. Supplied upon written request to NCHS, 6525 Belcrest Road, Hyattsville, MD 20782–2003, (310) 458–4636; National Center for Health Statistics, Division of Vital Statistics (unpublished, 2000). Deaths rates for 72 selected causes, by five-year age groups, race, and sex: United States, 1979–1998. Worktable GMWK 291 Trend B, plate 1 of 2, pages 485–490; CDC, National Center for Injury Prevention and Control, Office of Statistics and Programming (2006). Web-based Injury Statistics Query and Reporting System (WISQARS). Available at <<http://www.cdc.gov/ncipc/wisqars>>. Accessed December 18, 2006.

Since 1990, the first year in which a majority of states have recorded Hispanic-origin data, Hispanic adolescent males have consistently had lower suicide rates than non-Hispanics, though the rates for females have been nearly the same.

- Alcohol use is a major factor in the determination of national differences (Wasserman et al.).
- The difference between black and white suicide rates are greatest in those over thirty. Differences between black and white youth have narrowed since the 1980s, suggesting that a longstanding "protective effect" is losing its effect. Selective under-reporting of suicide among minorities in the U.S. occurs to a minor degree and does not by itself explain the magnitude of the difference (Mohler & Earls 2001). In 2004, black-white differences among 15- to 24-year-olds were greatest in Southern states and least in Midwestern and Northeastern states.

Possible explanations for ethnic rate differences include:

- Cultures/religions that regard suicide in a very negative light might discourage depressed believers

from committing suicide.

- African Americans are more likely to hold fundamentalist beliefs, i.e., an emphasis on scripture and on a "personal God." This might result in greater social-support and might reduce feelings of personal guilt and responsibility that are characteristic of the depressive state.
- Note: Some cultures encourage suicide under special circumstances, e.g., among the Apache Indians and the Seppuku tradition in Japan. However, cultural sanction for suicide applies only to small subgroups.

GEOGRAPHY

In the United States in 2004, suicide rates among 15- to 24-year-olds were lowest in the Northeastern states and highest in the West. Alaska had the highest suicide rate, followed by New Mexico and Montana.

THE CHANGING SUICIDE RATE (SEE FIGURE 3)

The teen suicide rate in boys tripled between the mid-1960s and the late 1980s. However, starting in 1994, the youth suicide rate fell by 30 percent or more in most groups. In 2003, the suicide rate for white teens was at its lowest level in 27 years and it is of great concern that in 2004 - a year that saw a great decline in the prescription of antidepressants - it increased.

- The decline in the suicide rate varied by ethnicity. It started first among whites but in other ethnicities followed 4-6 years later.
- There has been little change in the much-lower suicide rates of *white and other female teens*.

Possible explanations for the decline in the teen suicide rate.

Not supported:

- Use of drugs and alcohol is a known risk factor for suicide, but use rates increased during the period of declining suicide (CDC 2006) and so this is an unlikely explanation.
- Increased availability of suicide-awareness programs. There is no evidence that suicide-awareness programs increase help-seeking among depressed or suicidal teens. The AAS maintains a registry of suicide-prevention programs—mainly suicide-awareness programs—which remained constant during this period.

- Increased availability of psychotherapies. The use of psychotherapy by adolescents has not increased (Olfson et al. 2002), and, with the exception of dialectical-behavior therapy (DBT) (see Treatment) in adults, controlled psychotherapy studies have failed to show a reduction in attempts. Regretably, there are very few practitioners of DBT generally, and even fewer for adolescents. So, this, too, is unlikely to explain the decline.

Some support:

- The Brady Bill took effect in 1994 and may have hastened reduced gun availability.
- Psychoeducation and destigmatization of depression accompanying intense marketing of antidepressants.
- Continuous improvement in quality of emergency room care.
- Antidepressants. A substantial increase in the prescribing of medication, specifically antidepressants, for the general teenage population (Olfson et al. 2002) took place during this period. Although treatment of depression with SSRI antidepressants seems to result in an increase in suicide attempts and threats (Hammad 2004), there is no evidence of a similar effect on completed suicides, and SSRIs are rarely present at the autopsy of a teen suicide. Until controlled trials that are specifically designed to look at this question have been conducted many professionals will withhold judgement on this question.

THE SUICIDE ACT

METHODS

- In the United States, firearms are the most common method used to commit suicide by all age, gender, and ethnic groups.
- In 2006, overdoses accounted for only 3.2 percent of teenage male suicides, but accounted for 14.6 percent of teenage female suicides.
- Hanging, relative to other methods, is more common in early adolescence than in later years.
- Suicide rates by firearm have decreased since 1994, while rates by hanging have increased. While these changes are not equivalent, limiting access to guns

might be pushing suicidal teens to substitute the more accessible method of suffocation.

PRECIPITANTS

- Suicide often occurs shortly after a stress event (Gould et al. 1996), most commonly a disciplinary crisis or interpersonal loss (e.g., breakup with boyfriend or girlfriend, recent separation of parents, suspension from school, or appearance in juvenile court).
- Attempts to reconstruct the mental state of teen suicides from psychological-autopsy research suggest that high levels of anxiety or anger are commonly present just prior to death.

WHAT LEADS TO SUICIDE (RISK FACTORS)

PSYCHIATRIC DIAGNOSES

(See Table 2)

- Psychiatric studies in very different countries have shown that a psychiatric diagnosis is present in about 90 percent of suicides before and at the time of the death.
- Alcohol abuse is present in approximately two thirds of 18- to 19-year-old males, but are not

common in younger (< 14 years) male or female suicides (Shaffer et al. 1996).

- A history of depression alone or in combination with aggressive behavior and/or substance abuse or anxiety is found in over half of all suicides.
- Fewer than 10 percent of teenage suicides have schizophrenia or manic depression. Although these conditions have a high suicide rate, they are relatively infrequent in the general population.

TABLE 2

Psychiatric Diagnoses in Child and Adolescent Suicides (Percentages)									
STUDY	Marttunen et al. 1991			Shaffer et al. 1996			Brent et al. 1999		
COUNTRY	Finland			USA			USA		
AREA	National			Greater New York			Western Pennsylvania		
PERIOD	1987–1988			1984–1986			1984–1994		
N	53			120			140		
AGE	13–19			< 20			13–19		
% GIRLS	17%			21%			15%		
CONTROL GROUP	None			Matched Community			Matched Community		
DIAGNOSTIC SYSTEM	DSM-III-R			DSM-III			DSM-III-R		
DIAGNOSIS (%)	MALES %	FEMALES %	ALL %	MALES %	FEMALES %	ALL %	MALES %	FEMALES %	ALL %
Any Diagnosis	93	100	94	90	92	91	82	81	82
Any Mood Disorder	48	67	51	60	68	61	43	71	47
Substance Abuse	27	44	30	42	12	35	35	24	34
Conduct/Antisocial/ Disruptive Disorder	18	11	17	54	36	50	35	10	31
Any Anxiety Disorder	2	11	4	27	28	27	13	24	14
Schizophrenia	5	11	6	3	4	3	not measured	not measured	not measured
Past Suicide Attempt	27	67	34	28	50	33	37	62	41

Sources: Marttunen et al. (1991), Archives of General Psychiatry 48(9):834–839; Marttunen et al. (1995), Journal of the American Academy of Child and Adolescent Psychiatry 31(4):649–654; Shaffer et al. (1996a), Archives of General Psychiatry 53:339–348; Brent et al. (1999), Journal of the American Academy of Child and Adolescent Psychiatry 38(12):1497–1505.

CLINICAL FEATURES

- Between 25 and 50 percent of teenage suicide victims are known to have made a previous suicide attempt.
- Statements indicative of hopelessness were present in about half of all suicides. However, hopelessness

is a common feature of depression with or without suicidality.

- Aggressive/impulsive behavior is common in both sexes.
- About half of teenagers who committed suicide had had previous contact with a mental health professional.

- 15 to 20 percent had seen a mental health professional between one and three months prior to death (Shaffer et al. 1996).

SOCIO-ENVIRONMENTAL

- The *socioeconomic background* of suicides is generally similar to that of the general population, except among blacks. Black teen suicides tend to have a higher SES than the general black population (Gould et al. 1996).
- Suicides are less likely to *attend college* than same-age, same-sex general population. The rate of suicide in college students is somewhat lower than in 18-21 year olds in the general population. But this age is a period of significant suicide risk, and many students do commit suicide.
- *Firearm availability* might contribute to some suicides, but it is not clear that handgun control would have a major effect on the youth suicide rate. Very few (about 5 percent) suicides are committed with handguns, and the rate of suicide in the United States, where firearms are readily available, is lower than the rate in many countries where access to firearms is very limited. In countries that have implemented strict firearm controls the fall in suicides by firearm has been transient as other methods became used instead.
- Early *sexual and physical abuse* lead to many types of psychopathology, including suicide ideation and attempts. The effect on ideation and attempts is modest, but there is a statistically significant “dose-response” effect, so that abuse characterized by penetration gives a greater risk for suicide ideation and attempt behavior than other forms of sexual abuse (Ferguson et al. 1996).
- *Religious beliefs* might have a protective effect on suicidality and depression (Miller & Gur 2000) and have been offered as an explanation for the lower black suicide rates, especially in older cohorts (Nelleman et al. 1998). In adult populations, an association has been found between religious orthodoxy and lower suicidality.

NEUROCHEMICAL ABNORMALITIES

Findings in adult and older adolescent suicides and suicide attempts include:

- Abnormally low levels of the serotonin (5HT) metabolites 5-HIAA and HVA in cerebrospinal fluid. This suggests an underavailability of serotonin, a neurotransmitter that is sedating and that plays a key role in behavioral control.
- Reduced concentration of presynaptic serotonin binding sites in the ventral prefrontal cortex. This is

the part of the brain that plays a key role in behavioral control. Dysfunction in this area could lead to impulsive, excitable, intense behavioral responses to stress.

- Increased postsynaptic 5HT receptor density in the ventral prefrontal cortex. This could be the brain's way of trying to compensate for the underavailability of serotonin in the area.

FAMILIES

- Family dysfunction is common in youth with a psychiatric disorder, and when suicidal teens are compared to teens with the same disorder but who are not suicidal family factors such as divorces, living in a one parent families, marital disharmony, and parent/child friction do not distinguish between those with or without suicide except that:
- *Suicide victims communicate less often and less fully with their parents than control teens.*
- Having a close family member (sibling, parent, aunt, uncle, or grandparent) who committed suicide increases the risk of suicide twofold. Familial suicide could be a result of imitation or genetics. If it is a genetic influence, we do not know if it is the predisposition to a specific mental illness that is inherited.

SUICIDE CONTAGION

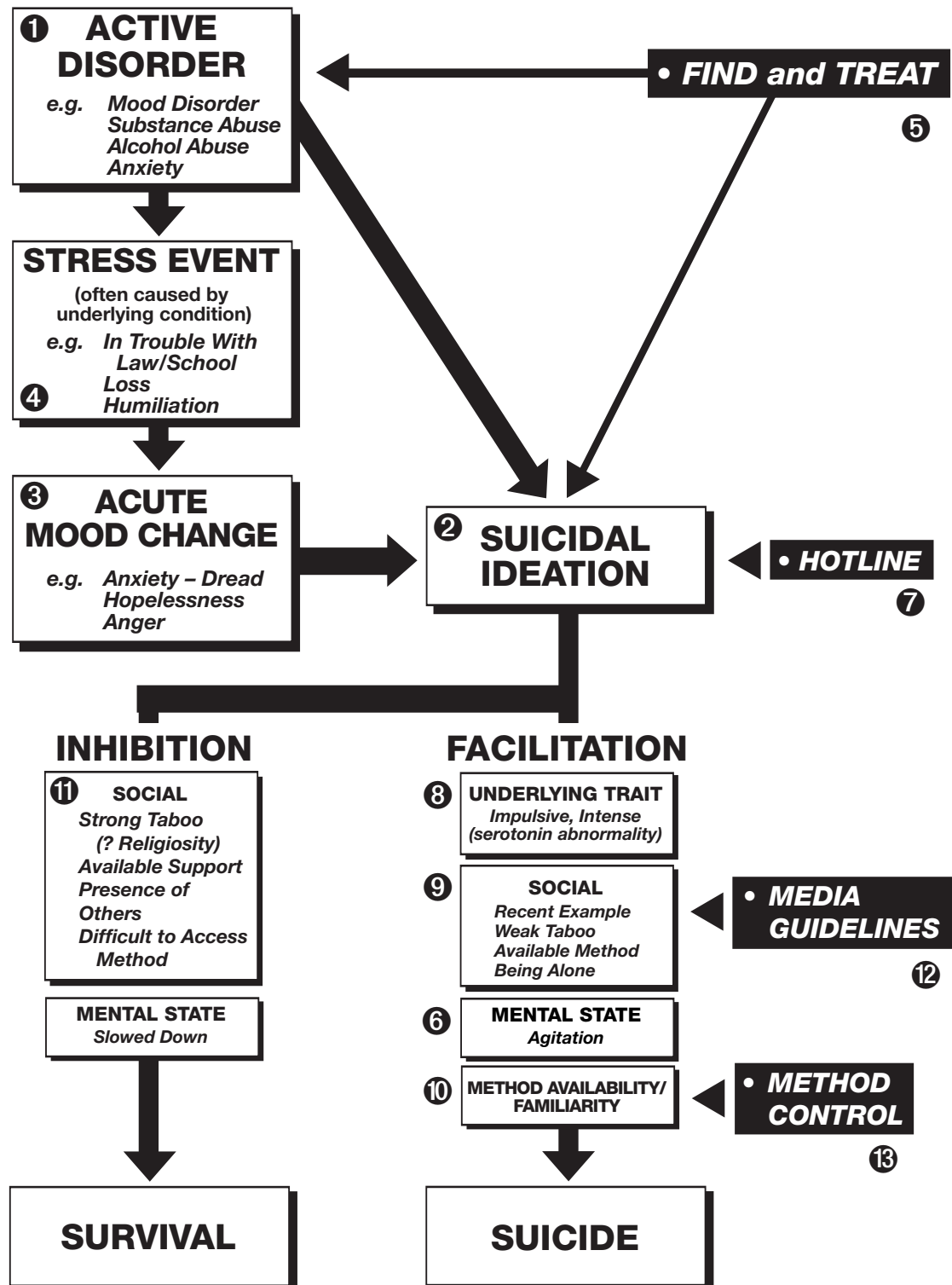
Suicide contagion, sometimes referred to as imitative or copy-cat suicide, is supported by the following evidence:

- After a film or news story on suicide, suicide rates tend to go up for a brief period of time, with higher rates of suicide by the same method as the published suicide.
- Following the implementation of suicide guidelines, or during newspaper strikes, suicide rates tend to go down for a period of time.
- There are accounts of specific suicides that were committed shortly after seeing or reading about a suicide.
- Suicide clusters occur in high schools and communities. Typically, these result in the death of three to seven teenagers over a period of three to nine months. Clusters appear more likely to occur after an initial public suicide.

SEXUAL ORIENTATION

Gay, lesbian, and bisexual youth have higher rates of suicidal ideation and suicide attempts. Research has not yet determined whether risk is elevated for completed suicide. Reasons underlying increased risk of suicide attempts in gay, lesbian, and bisexual youth are under investigation.

HOW DO SUICIDES OCCUR AND HOW CAN THEY BE PREVENTED?



PERINATAL HAZARD

Salk et al. (1985) first noted an excess of *obstetric complications* among suicides. This was then confirmed by other investigators in the U.S. and Europe.

- Mothers of the eventual suicides received less prenatal care and were more likely to smoke cigarettes and drink alcohol during pregnancy.

A SEQUENTIAL MODEL OF SUICIDE

The preceding flow chart proposes a “model” indicating where the most important risk factors operate. It provides a strategic map of locations where interventions might be useful.

An active *mental disorder* (1), most commonly a mood disorder, often in males with co-occurring substance abuse or disruptive disorder, is present in about 90 percent of adolescent suicides at the time of death and, along with *suicidal ideation* (2) (see below), can conveniently be regarded as the closest thing we have to a *necessary* risk condition. Even though relatively few psychiatrically disturbed youths will commit suicide, aggressive case-finding and the development and provision of effective treatment for affected youth could be expected to reduce the suicide rate.

The *cognitive set* (3) of hopelessness seems to predispose to suicidal ideation. Hopelessness is often a product of depression and could be expected to be reduced with treatment of psychiatric disorder. However, hopelessness, long regarded by cognitive theorists as predisposing to depression, has in several studies appeared to operate as a risk factor for suicide independent of depression. Thus, the treatment of hopelessness by appropriate psychotherapy could be considered a reasonable preventive intervention.

Adverse *stress events* (4), most often a disciplinary crisis, interpersonal loss, or a perceived humiliation, often occur in close proximity to a suicide. Such events are common during adolescence and are only weak independent predictors of suicide. Their high frequency makes them an inappropriate focus for intervention. However, in many instances, these events might be a consequence of an adolescent's underlying mental disorder, which, in a vicious cycle, might also deprive the teen of parent, peer, or teacher support and in other ways impede his or her ability to cope with or seek solutions to stresses. Case-finding (5) and treatment of psychiatric disorder could also be an effective preventive activity at this level.

External stress events are probably linked to suicide through the induction of a *negative mood* (6). Suicide hot lines (7) were originally designed to operate at this point in the process of burgeoning suicidality. Interventions that alert the teen to dangerous internal mental states and provide skills for dealing with these

- The reasons for this have not been confirmed, but the excess of suicide could, therefore, be due to CNS consequences of birth complications, exposure to some teratogen during pregnancy, the heritability of psychopathology, the effects of inappropriate parenting by deviant mothers, etc.

directly or by obtaining external help, whether from a professional or a help line, could operate here.

An underlying disorder, recent stress, and inadequate support, coupled with hopelessness or preoccupation with suicide, will thus set the stage for suicide. We must assume that many teens experience this confluence of risk factors, yet few commit suicide. It is probably at this point that specific enhancers and inhibitors operate.

Enhancement might be mediated by a biological or toxic (i.e., drug- or alcohol-induced) predisposition to impulsivity or emotional volatility (8), by high social value being placed on suicide (as by the victim's familiarity with peers or public figures whose suicide, related by the media, carries a sense of importance or romance) (9), by the availability of a lethal method (10), by social isolation, or by the absence of any *inhibiting* factors.

Inhibiting (11) factors might include societal or religious taboos, the presence of social support, and difficulty in accessing a method.

Preventive interventions operating at this final stage would, therefore, include media guidelines (12) to promote responsible reporting of suicide and to minimize contagion, promotion of strong taboo against suicide in society, and the removal of lethal medications and weapons (13) from the homes of suicidal youth. Nearly all of these would involve nonmedical, societal, or political interventions.

There remain some factors, in particular a *family history* of suicidal behavior, that appear to operate as salient risk factors even when controlling for psychopathology, but that are difficult to place in this model: family history, which could operate at a number of points, including modeling; an association with adverse early experiences; a genetic disposition towards another risk factor, such as a type of psychiatric disorder; a violent, impulsive temperament; or some combination of these.

On the basis of an analysis of this kind, the best bet for suicide prevention would seem to be the effective identification and treatment of associated psychiatric disorders. These operate to promote suicide at many points of the process, and our ability to intervene effectively with these is probably greater than our ability to bring about the societal or political changes that are needed to alter the end-stage determinants of suicide.

Percentage of High-School Students Who Felt Sad or Hopeless,*† Who Seriously Considered Attempting Suicide,† Who Made a Suicide Plan,† Who Actually Attempted Suicide*† and Whose Suicide Attempt Required Medical Attention,* by Sex, Race/Ethnicity, and Grade — UNITED STATES, YOUTH RISK BEHAVIOR STUDY, 2005, N=13,917 —

* Almost every day for ≥ 2 weeks in a row.
 † During the 12 months preceding the survey.
 ‡ Non-Hispanic.
 § One or more times.
 ¶ 95-percent confidence interval.

page 9

SUICIDE ATTEMPTS

EPIDEMIOLOGY

- Beginning in 1991, biennial changes in the suicide-attempt and suicidal-ideation rates have been assessed in the Youth Risk Behavior Survey (YRBS). Our most representative information comes from this survey, and, unlike mortality data, the YRBS presents a direct comparison of white, black, and Hispanic youth.
- High-school-age girls have higher rates of feeling sad or hopeless, seriously considering suicide, making a suicidal plan, attempting suicide, and making a suicide attempt that requires medical attention than boys (YRBS 2001, 2005; see Table 3).
- In 2005, 8.4 percent of U.S. high-school students reported having made a suicide attempt in the past 12 months, and 6 percent of male U.S. high-school students reported an attempt in the past 12 months. The female-to-male attempted suicide ratio is 1.8:1.
- In most countries, suicide attempts are more common among females than among males.
- In the U.S., Hispanic teens, as compared to whites or blacks, have the highest attempt rates (YRBS 2006).
- Teen suicide attempt rates are higher when asked using anonymous self-reports than in face-to-face interviews (Safer 1997).
- Most teen suicide attempters seen in an emergency room or clinic have cut themselves or have taken an overdose.
- Suicide attempts are made relatively infrequently by prepubertal children and they increase in prevalence through adolescence, reaching a peak at around age sixteen, after which they decline (Kessler et al. 1999).

MANAGEMENT

The goal of the first evaluation is to determine whether an adolescent needs continued observation or can be safely discharged home. Factors indicating hospitalization for further evaluation and supervision include:

- **Gender:** All males over age 12.
- **Mental State:** Evidence of significant depression, evidence of psychosis, feelings of hopelessness, or a recent history of social withdrawal and uncommunicativeness.
Teens who declare that they still wish to die should be retained.
An intoxicated teen should be retained in the emergency room until sober.
- **Nature of the Attempt:** Hospitalization is indicated if the attempter employed a potentially lethal method other than ingestion or superficial cuts to the skin.
- **A past history** of suicide attempt and/or an established history of volatile unpredictable behavior.

- **Home Background:** The absence of a caring or responsible setting to which to discharge the patient is an added consideration if any of the other listed factors are dubious.

EVALUATION OF THE ATTEMPT

The contingencies surrounding the suicide attempt should be evaluated to help determine the potential risk of a re-attempt. Evaluations of the attempt should consider the following:

- The method used, including its lethality and/or the teen's perception of its lethality.
- Precipitants of the attempt, including external triggers (e.g., arguments with family members or friends, school problems, etc.) and internal triggers (e.g., re-experienced symptoms, negative automatic thoughts, etc.).
- Degree of intent (i.e., How much did the teen wish to die?).
- Degree of planning involved in making the attempt (e.g., Was the attempt planned ahead of time or was it impulsive?).
- Was the attempt made when the teen was alone or when others were present or in close proximity?
- Did the teen make threats or give warnings prior to the attempt?
- Was the attempt timed so that intervention would be possible?
- Disclosure of the attempt (i.e., Did the teen tell someone after making the attempt?).
- The teen's reaction to the attempt (i.e., Is the teen happy to have recovered or is he/she is sorry the attempt was not successful?).
- Frequency and duration of suicidal ideation preceding and following the attempt.

DISCHARGE

It might be reasonable to discharge the patient if the teen's physical condition permits and if none of the above criteria are met. Discharge should take place only after the following actions have been taken:

- The *salient features* in the teen's history (e.g., details of the method used, the absence of other recent attempts, no evidence of disturbed behavior prior to the attempt, etc.) must be corroborated by the teen's usual caretaker.
- No suicide attempter should be discharged from an emergency room or a doctor's office without a history being taken from a parent or caretaker.
- The caretaker must agree to undertake to immediately remove and/or *secure any firearms* or potentially dangerous medications present in the home.

HIGH RISK FOR SUICIDE

- **BOTH GENDERS**
 - Persistent wish to die
 - Taking precautions against discovery
- **AMONG MALES (AT MUCH HIGHER RISK THAN FEMALES)**
 - Previous Suicide Attempts
 - Age 16 or Over
 - Associated Mood Disorder
 - Associated Substance Abuse
- **AMONG FEMALES**
 - Mood Disorders
- **IMMEDIATE RISK** Predicted by Agitation and MDD

- Concrete and precise arrangements must be made for a *follow-up appointment*. It is not sufficient to instruct the teen or family to call the office tomorrow to make an appointment.
- The teen must be given a *telephone number* to call in the event that they again feel like committing suicide.

TREATMENT

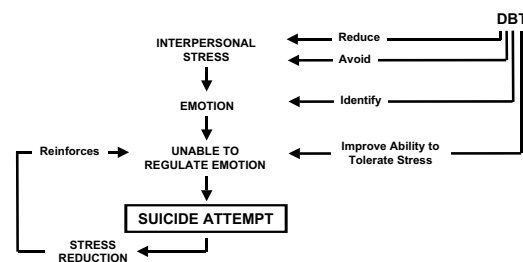
- Psycho-education. Parents, peers, etc., need to be informed about features that may herald a period of great vulnerability, e.g., increased agitation and irritability after getting into trouble, etc. Parents need to be counseled on how to reduce expressed emotion in the presence of the youth.
- There are few controlled studies among either adolescents or adults to inform on optimal treatment approach.
- It is customary to use a problem-oriented approach that puts little focus on suicidality alone, but addresses the teen's diagnosis, the circumstances that led to the attempt, the family situation, and the psychiatric status of the parents.
- *Cognitive-behavior therapy (CBT)* has been tested in several randomized controlled trials. It aims to help the patient identify negative feeling states, correct irrational ideas, and become aware of the options that are open to him or her. For example, if suicide is seen as the "only solution" to a "hopeless" problem, the therapist will help patients weigh up their reasons for living and dying, teach alternative problem-solving solutions, and, through the use of role-playing, rehearse strategies that can be used when a crisis situation next arises.
- *Dialectical-behavior therapy (DBT)* (Linehan 1993) is a form of therapy that balances the need for changing certain behaviors with acceptance of

other characteristics of the self, avoidance or improved management of interpersonal conflicts, and reducing the impact of painful situations. It emphasizes self-observation and regulation of affect to prevent impulsive responses to distress.

- *Medication:* There is as yet no well-designed study

DIALECTICAL-BEHAVIOR THERAPY (DBT)

— MECHANISMS —



to show whether psychoactive drugs can impact on *adolescent* suicidality. However, SSRI antidepressants have been shown to reduce suicidal preoccupations in both depressed and nondepressed suicidal adults (Letizia 1996; Verkes 1999). Lithium prophylaxis significantly reduces the likelihood of suicidality in adults with bipolar illness. Clozapine reduces suicidality in adults with schizophrenia. As noted above, SSRIs reduce depressive symptoms in adolescents.

- Involving parents and other *family* members in *treatment* is recommended to reduce parent-child conflict and improve family communications and conflict-resolution skills. Improved family relations often reduce the teen's feelings of hopelessness and anger.

PREVENTION

POSSIBLE PREVENTION STRATEGIES

1. Crisis Services (Hot Lines)

Practical Advantages:

- Provides some level of service at times when other services are unavailable.
- Offers confidentiality and anonymity to clients.
- Provides information about other treatment resources.
- Provides a safe, nonjudgmental environment enabling clients to articulate complex feelings.
- Offers added benefit of allowing callers to freely initiate and terminate contact.

Efficacy: Although evidence for their efficacy is sparse, recent evidence indicates that youth who use hot lines are helped by them. Uncontrolled study of telephone crisis counseling yielded significant decreases in suicidality and significant improvements in the mental state of youth during the course of the call.

Lack of Efficacy:

- Few adolescents use hot lines.
- Negative attitudes are stronger toward hot lines than they are toward other sources of help.

Recent Updated Services: Efforts are underway to standardize and increase the quality of the risk assessments and interventions provided by hot lines, under the auspices of the National Suicide Prevention Lifeline (1-800-273-TALK), funded by the Substance Abuse and Mental Health Services Administration (SAMHSA).

2. Educational Approaches

There has been a considerable increase in the provision of suicide-prevention programs for United States high-school students. Most programs provide curricula directly to high-school students.

Goals are to:

- Increase awareness of the problem.
- Provide knowledge about the behavioral characteristics (“warning signs”) of teens at risk for suicide.
- Describe available treatment or counseling resources.

However:

- Few programs subscribe to a model of suicide as a product of mental illness. Most assume that suicide follows from common environmental stresses and that all teenagers share a potential vulnerability to suicide.

- Programs do not effectively increase knowledge, alter unwanted attitudes to suicide, or increase help-seeking behavior.
- They are unselective, and their audiences are predominantly not at risk for suicide.
- Problematic to expose the majority group, most of whom would not hope to obtain benefits from discussions about suicide.
- The stress model could help to reduce protective taboos.

Suicide-Awareness Voices Education (www.save.org): Using QPR (question, persuade, and refer), trained volunteer staff teach school communities how to recognize symptoms of clinical depression, the warning signs of suicide, and how to get help. Implemented in school settings.

Yellow Ribbon (www.yellowribbon.org): A community-based model that promotes help-seeking behavior through education and gatekeeper training. Implemented in school settings, the program includes the following components:

- Increasing public awareness of suicide prevention.
- Training gatekeepers.
- Facilitating help-seeking behavior with “Ask for Help” cards that include a toll-free number.

The Jed Foundation (www.jedfoundation.org): Takes place on university campuses and primarily involves an Internet-based intervention system. U-Lifeline allows college students to assess their mental health status and locate community resources.

Lifelines: AFSP and SPRC list this curriculum-based intervention as a “promising evidence-based program.” Four 45-minute lessons comprise this school-based program and include:

- Help-seeking, school-resources, and suicide-attitudes education.
- Role playing and exercises to identify suicidal peers.
- Modeling of appropriate and inappropriate responses to suicidal peers.
- Policies for responding to at-risk youth, suicide attempts, and completions.

3. Case-Finding

- Systematically screen teens to identify those who have made previous attempts, are currently suicidal, are currently depressed, or suffer from substance or alcohol abuse. Sensitive surveys that

identify most teens at risk can be conducted that respect confidentiality.

- However, there will be many false positives, and these are costly.
- The President's New Freedom Commission (2003), the Children's Mental Health Screening and Prevention Act (2005), and the Garrett Lee Smith Memorial Act (2004) support youth-suicide-prevention programs and recommend increased screening for suicidality.
- Results from a randomized controlled trial (Gould 2005) investigating the potential harm of screening for suicide in troubled youth indicate no evidence of iatrogenic effects. Results suggest that students exposed to suicide questions were no more likely to report suicidal ideation after the survey than unexposed students. Furthermore, high-risk students in the experimental group were neither more suicidal nor more distressed than their control-group counterparts.

Columbia University TeenScreen (www.teencreen.org): AFSP and SPRC list this national mental health and suicide screening program as a "promising evidence-based program." Screening takes place primarily in school settings, but also in juvenile justice facilities, shelters, and doctor's offices.

The program involves the following stages:

- Voluntary parental consent and student assent.
- Screening using the Columbia Suicide Screen (CSS) and immediate scoring by trained staff.
- A debriefing interview for those who score "negative" on the questionnaire and a clinical interview with a mental health professional for those score "positive" on the questionnaire.
- If further evaluation is recommended as a result of the clinical interview, parents are contacted by a case manager and offered assistance connecting with local service providers.
- Hit and miss rates using the CSS as compared to the DISC are:

	ANY IDEATION OR ATTEMPT OR A DSM-III-R MOOD, ANXIETY OR SUBSTANCE- USE DISORDER WITH IMPAIRMENT (N = 172)		ANY IDEATION OR ATTEMPT AND A DSM-III-R MOOD, ANXIETY, OR SUBSTANCE- USE DISORDER WITH DISORDER (N = 51)	
	HIT	MISS	HIT	MISS
EMPIRICALLY DERIVED ALGORITHM (2004 PAPER)	39%	61%	65%	35%
CTS ALGORITHM	65%	35%	82%	18%

- The rate at which the CSS over identifies youth is:

	ANY IDEATION OR ATTEMPT OR A DSM-III-R MOOD, ANXIETY OR SUBSTANCE- USE DISORDER WITH IMPAIRMENT (N = 172)		ANY IDEATION OR ATTEMPT AND A DSM-III-R MOOD, ANXIETY, OR SUBSTANCE- USE DISORDER WITH DISORDER (N = 51)	
	PPV	OVER IDENTIFY	PPV	OVER- IDENTIFY
EMPIRICALLY DERIVED ALGORITHM (N = 80)	81%	19%	41%	59%
CTS ALGORITHM (N = 186)	60%	40%	23%	77%

- The proportion of those positive on the CSS for substance abuse, depression, and anxiety only versus those with a previous suicide attempts is:

	PRIOR ATTEMPT WITH ANY OR WITHOUT DX (NO DIAGNOSIS ATTEMPT)		IDEATION ONLY	NOTHING
EMPIRICALLY DERIVED ALGORITHM (N = 80)	27 (33.8%)	27 (33.8%)	11 (13.8%)	15 (18.8%)
CTS ALGORITHM (N = 186)	37 (19.9%)	53 (28.5%)	21 (11.3%)	75 (40.3%)

SOS: Signs of Suicide (www.mentalhealthscreening.org/highschool): The AFSP and SPRC list this program as a "promising evidenced-based program." It combines an educational curriculum to raise awareness of suicide and its related issues with the Columbia Depression Scale (CDS) screening form. Implemented in school settings, the program involves the following stages:

- A 50-minute classroom presentation featuring a 25-minute video, a teacher-led discussion, and the screening questionnaire.
- Students self-score form.
- Students are taught to self-refer and peer-refer if they indicate a mental health problem.

A recent paper by Hallfors et al. (2006) examines an instrument and screening method significantly different than TeenScreen.

The study found that a substantial number of the children identified by their screen were judged not to have a serious disorder and that the screening procedure was burdensome to school teachers. The authors concluded by suggesting that screening be abandoned.

A comparison of the Hallfors screening study and the TeenScreen program illustrates how this study is not comparable to TeenScreen:

Hallfors Study

- 1- to 4-week follow-up, and at one school no follow-up, of identified youth.

- Follow-up evaluations conducted by school staff, interfering with the youth's mental health confidentiality.
- One depression-related question and no anxiety related questions on screening form.
- Analyses do not reveal diagnostic profile of screened teens, so it is unknown what diagnoses were found and then deemed insignificant (by non-clinicians) in those screened positive.
- Recommendation not to undertake further screening drawn largely from opinions of academic counselors who may have lacked the skills to make important clinical decisions.

TeenScreen Program

- Immediate clinical evaluation required for identified youth.
- Clinical evaluations conducted by qualified mental health professionals.
- Three questions about depression plus anxiety related questions on screening form.
- Screening program and records kept separate from academic records and staff.

Screening as a mental health check-up also identifies youth who may not be actively suicidal, but at risk for other debilitating mental health problems that may influence suicidal ideation and attempt. Research shows that 90 percent of suicide completers have a diagnosable mental illness at the time of death. (Shaffer 1996)

Children who suffer from mental health problems such as depression, anxiety, suicidal behavior, substance, and alcohol use and abuse do not perform well academically compared to their non-mentally ill peers (U.S. Dep of Ed 2001; Reinherz et al. 1993). Over half of the adolescents in the United States who fail to complete their secondary education have a diagnosable psychiatric disorder (Stoep et al. 2003).

A 21-year longitudinal study found that anxiety disorders were associated with drug use and dependence, suicidal behavior and a reduced likelihood of attending college (Woodward et al. 2001).

Conversely, research indicates that pressure from maladaptive perfectionistic strivings and an excessive investment in accomplishments, such as academics, may contribute to an elevated risk of depression and anxiety (Luthar & Becker 2002).

4. Professional Education

Training medical professionals in the appropriate use of antidepressant and mood-stabilizing drugs has been found to reduce the suicide rate, at least among female adults.

BIBLIOGRAPHY

I. EPIDEMIOLOGY AND NATURAL HISTORY

Andrews, J. A., & Lewinsohn, P. M. (1992). Suicidal attempts among older adolescents: prevalence and co-occurrence with psychiatric disorders. *Journal of the American Academy of Child and Adolescent Psychiatry* 31:655–662.

CDC (2006). Youth Risk Behavior Surveillance – United States, 2005. *Morbidity and Mortality Weekly Report* 55:1–112.

Biennial federal survey of high-school students with randomized sample of N=13,917. Prevalence of suicidal ideation and suicide attempt within past 12 months collected by anonymous self-report. Best U.S. epidemiological adolescent suicide attempt prevalence study.

Dubow, E. F., Kausch, D. F., Blum, M. C., Reed, J., & Bush, E. (1989). Correlates of suicidal ideation and attempts in a community sample of junior high and high school students. *Journal of Clinical Child Psychology* 18:158–166.

Fombonne, E. (1998). Suicidal behaviours in vulnerable adolescents. Time trends and their correlate. *British Journal of Psychiatry* 173:154–159.

Gould, M. S., Shaffer, D., Fisher, P., Kleinman, M., & Morishima, A. (1992). The clinical prediction of adolescent suicide. In *Assessment and Prediction of Suicide*, ed. R. W. Maris, A. L. Berman, J. T. Maltsberger, & R. I. Yukit. New York: Guilford.

Kessler, R. C., Borges, G., & Walters, E. E. (1999). Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. *Archives of General Psychiatry* 56(7):617–626.

Lewinsohn, P. M., Rohde, P., & Seeley, J. R. (1996). Adolescent suicidal ideation and attempts: prevalence, risk factors, and clinical implications. *Clinical Psychology: Science and Practice* 3:25–46.

Excellent prevalence study of adolescent suicide attempts, collected by interviewing epidemiological sample.

Mohler & Earls (2001). Trends in adolescent suicide: Misclassification bias. *American Journal of Public Health* 91:150–153.

National Center for Health Statistics, CDC (2000). Deaths from 72 selected causes by five-year age groups, race, and sex: United States, 1979–1998. Worktable gmwk 291A. <http://www.cdc.gov/nchs/datawh/statab/unpubd/mortabs/gmwk291.htm>.

Electronic detailed statistical table listing U.S. suicide rates by cause, five-year age groups, race, and sex for years 1979–1998.

National Center for Health Statistics, cdc (2000). Deaths from 282 selected causes by five-year age groups, race, and sex: United States, 1979–1998. Worktable gmwk 292A. <http://www.cdc.gov/nchs/datawh/statab/unpubd/mortabs/gmwk292a.htm>.

Rates of different methods of suicide in United States. All NCHS (Centers for Disease Control) detailed statistical tables on mortality listed at Web site <http://www.cdc.gov/nchs/datawh/statab/unpubd/mortabs.htm>.

Safer, D. J. (1997). Self-reported suicide attempts by adolescents. *Annals of Clinical Psychiatry* 9:263–269.

Shaffer, D., Gould, M., & Hicks, R. (1994). Worsening suicide rate in black teenagers. *American Journal of Psychiatry* 151(12):1810–1812.

Shaffer, D., & Hicks, R. (1993). The epidemiology of child and adolescent suicide. In *The Epidemiology of Childhood Disorders*, ed. B. Pless, 339–368. New York: Oxford University Press.

U.S. and international epidemiological data.

Velez, C. N., & Cohen, P. (1988). Suicidal behavior and ideation in a community sample of children: maternal and youth reports. *Journal of the American Academy of Child and Adolescent Psychiatry* 27:349–356.

World Health Organization & WHOSIS (WHO Statistical Information System) (2000). On-line version of the *World Health Statistics Annual 1997–1999*. Mortality Data. <http://www.who.int/whosis/>.

International suicide rates.

II. DIAGNOSIS

Brent, D. A., Baugher, M., Bridge, J., Chen, T., & Chiapetta, L. (1999). Age- and sex-related risk factors for adolescent suicide. *Journal of the American Academy of Child and Adolescent Psychiatry* 38:1497–1505.

Extension of Brent et al. 1993 case-controlled psychological-autopsy study with additional cases added.

Brent, D. A., Perper, J. A., Moritz, G., Allman, C., Friend, A., Roth, C., Schweers, J., Balach, L., & Baugher, M. (1993). Psychiatric risk factors for adolescent suicide: a case-control study. *Journal of the American Academy of Child and Adolescent Psychiatry* 32:521–529.

Controlled psychological-autopsy study of Pittsburgh adolescent suicides.

Gould, M. S., King R., Greenwald, S., Fisher, P., Schwab-Stone, M., Kramer, R., Flisher, A. J., Goodman, S., Canino, G., & Shaffer, D. (1998). Psychopathology associated with suicidal ideation and attempts among children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry* 37:915–923.

From MECA epidemiological study randomly interviewed with DISC-2.3, 1,285 youths, of whom 42 reported suicide attempters and 67 reported suicidal ideation only. Compared psychiatric diagnosis in child and adolescent attempters, ideators, and controls and found mood, anxiety, and substance-abuse disorders independently increased the risk of suicide attempt.

Marttunen, M. J., Henriksson, M. M., Aro, H. M., Heikkinen, M. E., Isometsa, E. T., & Lonnqvist, J. K. (1995). Suicide among female adolescents: characteristics and comparison with males in the age group 13 to 22 years. *Journal of the American Academy of Child and Adolescent Psychiatry* 34:1297-1307.

Uncontrolled psychological-autopsy study in Finland.

Marttunen, M. J., Hillevi, M. A., Henriksson, M. M., & Lonnqvist, J. K. (1991). Mental disorders in adolescent suicide: DSM-III-R axes I and II diagnoses in suicides among 13- to 19-year-olds in Finland. *Archives of General Psychiatry* 48:834-839.

Uncontrolled psychological-autopsy study in Finland.

Robins, E., Gassner, S., Kayes, J. [and others] (1959). The communication of suicide intent: a study of 134 consecutive cases of successful (completed) suicide. *American Journal of Psychiatry* 115:724-733.

The first psychological-autopsy study on a large, consecutive series of suicides.

Shaffer, D., Gould, M., Fisher, P., Trautman, P., Moreau, D., Kleinman, M., & Flory, M. (1996). Psychiatric diagnosis in child and adolescent suicide. *Archives of General Psychiatry*.

Large (N=121) controlled psychological-autopsy study of consecutive teen suicides which implicate male substance abuse and mood disorders in both genders as significant risk factors.

III. RISK FACTORS AND PROGNOSIS

Blake, S. M. J., Ledsy, R., Lehman, T., Goodenow, C., Sawyer, R., & Hack, T. (2001). Preventing sexual risk behaviors among gay, lesbian, and bisexual adolescents: The benefits of gay-sensitive HIV instruction in schools. *American Journal of Public Health* 91:940-946.

Fergusson, D. M., Lynskey, M. T., & Horwood, L. J. (1996). Childhood sexual abuse and psychiatric disorder in young adulthood: I. Prevalence of sexual abuse and factors associated with sexual abuse. *Journal of the American Academy of Child and Adolescent Psychiatry* 35(10): 1355-1364.

Fergusson, D. M., Horwood, L. J., & Lynskey, M. T. (1996). Childhood sexual abuse and psychiatric disorder in young adulthood: II. Psychiatric outcomes of childhood sexual abuse. *Journal of the American Academy of Child and Adolescent Psychiatry* 35(10):1365-1374.

Fergusson, D. M., Horwood, L. J., & Beautrais, A. L. (1999). Is sexual orientation related to mental health problems and suicidality in young people? *Archives of General Psychiatry* 56:876-880.

Garofalo, R., Wolf, R. C., Wissow, L. S., Woods, E. R., & Goodman, E. (1999) Sexual orientation and risk of suicide attempts among a representative sample of youth. *Archives of Pediatric and Adolescent Medicine* 153:487-493.

Gould, M. S., Fisher, P., Shaffer, D., Parides, M., & Flory, M. (1996). Psychosocial risk factors of child and adolescent completed suicide. *Archives of General Psychiatry* 53:1155-1162.

Gould, M. S., Shaffer, D., Fisher, P., & Garfinkel, R. (1998). Separation/divorce and child and adolescent com-

pleted suicide. *Journal of the American Academy of Child and Adolescent Psychiatry* 37:155-162.

From New York (N=121) controlled psychological-autopsy study. Found a small but significant impact of separation/divorce that was further diminished after accounting for parental psychopathology. There was an interaction between separation/divorce and the father-child relationship.

Hawton, K., O'Grady, J., Osborn, M., & Cole, D. (1982). Adolescents who take overdoses: their characteristics, problems, and contacts with helping agencies. *British Journal of Psychiatry* 140:118-123.

Miller, X., & Gur, X. (2002). Religiosity, depression, and physical maturation in adolescent girls. *Journal of the American Academy of Child and Adolescent Psychiatry* 41:206-214.

Motto, J. A. (1984). Suicide in male adolescents. In *Suicide in the Young*, ed. H. S. Sudak, A. B. Ford, & N. B. Rushforth. Boston: John Wright-PSG.

Neeleman, J., Wessely, S., & Lewis, G. (1998). Suicide acceptability in African-Americans. *Journal of Nervous and Mental Disease* 186:12-16.

Negron, R., Piacentini, J., Graae, F., Davies, M., & Shaffer, D. (1997). Microanalysis of adolescent suicide attempters and ideators during the acute suicidal episode. *Journal of the American Academy of Child and Adolescent Psychiatry* 36:1512-1519.

Neugebauer, R., & Reuss, M. L. (1998). Association of maternal, antenatal, and perinatal complications with suicide in adolescence and young adulthood. *Acta Psychiatrica Scandinavica* 97:412-418.

Otto, U. (1972). Suicidal acts by children and adolescents: a follow-up study. *Acta Psychiatrica Scandinavica* (supplementum):233.

Salk, L., Sturmer, W., Reilly, B. [and others] (1985). Relationship of maternal and perinatal conditions to eventual adolescent suicide. *The Lancet* 1(8429):624-627.

Follow-back study matching current suicide cases to earlier birth records.

Shaffer, D., Fisher, P., Hicks, R., Parides, M., & Gould, M. (1995). Sexual orientation in adolescents who commit suicide. *Suicide and Life-Threatening Behavior* 25(supplement):64-71.

IV. NEUROBIOLOGY

Arango, V., Underwood, M. D., & Mann, J. J. (1997). Biologic alterations in the brainstem of suicides. *Suicide* 20(3):581-593.

Study points to the localization of serotonin abnormalities in the prefrontal cortex.

Linnoila, M., et al. (1983). Low cerebrospinal fluid 5-hydroxyndoleacetic acid concentration differentiates impulsive from non-impulsive violent behavior. *Life Sciences* 33:2609-2614.

Early study showing the relationship between impulsive aggressive behavior and low serotonin activity.

Mann, J. J. (1998). The neurobiology of suicide. *Nature Medicine* 4(1):25–30.

A good, up-to-date review.

Mann, J. J., and Malone, K. M. (1997). Cerebrospinal fluid amines and higher lethality suicide attempts in depressed inpatients. *Biological Psychiatry* 41:162–171.

Mann, J. J., et al. (1996). Attempted suicide characteristics and cerebrospinal fluid amine metabolites in depressed inpatients. *Neuropsychopharmacology* 15:576–586.

Mann, J. J., Oquendo, M., Underwood, M. D., & Arango, V. (1999). The neurobiology of suicide risk: a review for the clinician. *Journal of Clinical Psychiatry* 60(supplement 2):7–11.

Nordstrom, P., Samuelsson, M., Asberg, M., Traskman-Bendz, L., Aberg-Wistedt, A., Nordin, C., & Bertilsson, L. (1994). CSF 5-HIAA predicts suicide risk after attempted suicide. *Suicide and Life-Threatening Behavior* 24:1–9.

Nordstrom, P., et al. (1994). CSF 5-HIAA predicts suicide risk after attempted suicide. *Suicide and Life-Threatening Behavior* 24:1–9.

In vivo study suggesting low CSF 5-HIAA predicts successful suicide in suicide attempters.

Oquendo, M. A., & Mann, J. J. (2000). The biology of impulsivity and suicidality. *Psychiatric Clinics of North America* 23:11–25.

Roy, A., Rylander, G., & Sarchiapone, M. (1997). Genetics of suicides. Family studies and molecular genetics. *Annals of the New York Academy of Sciences* 836:135–157.

V. IMITATION

Bollen, K. A., & Phillips, D. P. (1982). Imitative suicides: a national study of the effects of television news stories. *American Sociological Review* 47:802–809.

Davidson, L., et al. An epidemiologic study of risk factors in two teenage suicide clusters. *Journal of the American Medical Association* 262:2687–2692.

Comparison of children who died in a suicide cluster and normal controls. Demonstrates that most children who die in a cluster have psychopathology. Inappropriately concludes that media exposure not a factor.

Gould, M. S., & Shaffer, D. (1986). The impact of suicide in television movies: evidence of imitation. *New England Journal of Medicine* 315:690–694.

Gould, M. S., & Shaffer, D. (1988). The impact of televised movies about suicide. *New England Journal of Medicine* 318:707–708.

Empirical study demonstrating statistically significant increase in both suicides and suicide attempts.

Velting, D., & Gould, M. S. (1997). Suicide Contagion. In *Annual Review of Suicidology*, ed. R. Maris, S. Canett, & M. Silverman. New York: Guilford.

Good review of contagion and clusters

VI. TREATMENT OF SUICIDE ATTEMPTERS

Emslie, G. J., Rush, A. J., Weinberg, W. A., Kowatch, R. A., Hughes, C. W., Carmody, T., & Rintelmann, J. (1997). A double-blind, randomized, placebo-controlled trial of fluoxetine in children and adolescents with depression. *Archives of General Psychiatry* 54(11):1031–1037.

Emslie, G. J., & Mayes, T. L. (2001). Mood disorders in children and adolescents: Psychopharmacological treatment. *Biological Psychiatry* 49(12):1082–1090.

Hammad, T. A. (2004). Review and evaluation of clinical data: relationship between psychotropic drugs and pediatric suicidality. *Center for Drug Evaluation and Research* (p. 45). <http://www.fda.gov/ohrms/dockets/ac/04/briefing/2004-4065b1-10-TAB08-Hammads-Review.pdf>.

Harrington, R., Kerfoot, M., Dyer, E., Mcniven, F., Gill, J., Harrington, V., Woodham, A., & Byford, S. (1998). Randomized trial of a home-based family intervention for children who have deliberately poisoned themselves. *Journal of the American Academy of Child and Adolescent Psychiatry* 37:512–518.

Hawton, K., Arensman, E., Townsend, E., Bremner, S., Feldman, E., Goldney, R., Gunnell, D., Hazell, P., van Heeringen, K., House, A., Owens, D., Sakinofsky, I., & Traskman-Bendz, L. (1998). Deliberate self harm: systematic review of efficacy of psychosocial and pharmacological treatments in preventing repetition. *British Medical Journal* 317:441–447.

Excellent comprehensive review with meta-analyses of RCT suicide attempter treatment studies, grouped by type of therapy (problem solving, intensive intervention after ER presentation, emergency card or token provided for access to emergency advice or hospital admission, and antidepressant medications). Outcome measure: significant reduction in repetition of self-harm behavior in the treatment group in the one or two years following the attempt.

Hawton, K., Townsend, E., Arensman, E., Gunnell, D., Hazell, P., House, A., & van Heeringen, K. (2000). Psychosocial versus pharmacological treatments for deliberate self-harm. *The Cochrane Library Issue 3* (electronic database and library from British Medical Journal). Oxford: Update Software.

Excellent and even more comprehensive update of Hawton et al. 1998 review of controlled treatment studies for suicide attempters of all ages. Updated through July 1999. Literature reviewed, criteria for inclusion, graphs summarizing studies, and lists of studies in progress are all provided. This database will be updated periodically. Available through many university libraries.

Isacsson, G., Holmgren, P., Druid, H., & Bergman, U. (1997). The utilization of antidepressants – a key issue in the prevention of suicide: an analysis of 5281 suicides in Sweden during the period 1992–1994. *Acta Psychiatrica Scandinavica* 96:94–100.

Keller, M. B., Ryan, N. D., Strober, M., Klein, R. G., Kutcher, S. P., Birmaher, B., Hagino, O. R., Koplewicz, H., Carlson, G. A., Clarke, G. N., Emslie, G. J., Feinberg, D., Geller, B., Kusumakar, V., Papatheodorou, G., Sack, W. H.,

Sweeney, M., Wagner, K. D., Weller, E. B., Winters, N. C., Oakes, R., & McCafferty, J. P. (2001). Efficacy of paroxetine in the treatment of adolescent major depression: A randomized, controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry* 40(7):762–772.

Kiev, A. (1975). Psychotherapeutic strategies in the management of depressed and suicidal patients. *American Journal of Psychotherapy* 29:345–354.

A dated account of dynamic psychotherapeutic approaches to treatment.

Kruesi, M. J., Grossman, J., Pennington, J. M., Woodward, P. J., Duda, D., & Hirsch, J. G. (1999). Suicide and violence prevention: parent education in the emergency department. *Journal of the American Academy of Child and Adolescent Psychiatry* 38:250–255.

Linehan, M. M., Armstrong, H. E., Suarez, A., Allmon, D., & Heard, H. (1991). Cognitive-behavioral treatment of chronically parasuicidal borderline patients. *Archives of General Psychiatry* 48:1060–1064.

RCT of dialectical behavior therapy in 22 suicidal borderlines and 22 controls showing marked benefits at 12 months.

Miller, A. L., Rathus, J. H., Linehan, M. M., Wetzler, S., & Leigh, E. (1997). Dialectical behavior therapy adapted for suicidal adolescents. *Journal of Practicing Psychiatry and Behavioral Health* (March):78–86.

Montgomery, S. A., & Montgomery, D. (1982). Pharmacological prevention of suicidal behaviour. *Journal of Affective Disorders* 4:291–298.

Mufson, L., Weissman, M. M., Moreau, D., & Garfinkel, R. (1999). Efficacy of interpersonal psychotherapy for depressed adolescents. *Archives of General Psychiatry* 56:573–579.

Olfson, M., Marcus, S. C., Weissman, M. M., & Jensen, P. S. (2002). National trends in the use of psychotropic medications by children. *Journal of the American Academy of Child and Adolescent Psychiatry* 41(5):514–521.

Rotheram-Borus, M., Piacentini, J., Miller, S., Graae, F., & Castro-Blanco, D. (1994). Brief cognitive-behavioral treatment for adolescent suicide attempters and their families. *Journal of the American Academy of Child and Adolescent Psychiatry* 33:508–517.

Salkovskis, P. M., Atha, C., & Storer, D. (1990). Cognitive-behavioural problem solving in the treatment of patients who repeatedly attempt suicide: a controlled trial. *British Journal of Psychiatry* 157:871–876.

Small (N=20) controlled trial of problem-solving with positive results at one-year follow-up.

Tondo, L., Jamison, K. R., & Baldessarini, R. J. (1997). Effect of lithium maintenance on suicidal behavior in major mood disorders. *Annals of the New York Academy of Sciences* 836:339–351.

Van Der Sande, R., Van Rooijen, L., Buskens, E., Allart, E., Hawton, K., Van Der Graaf, Y., & Van Engeland, H. (1997). Intensive in-patient and community intervention versus routine care after attempted suicide: a randomized controlled intervention study. *British Journal of Psychiatry* 35–41.

Intensive care, including brief IP admissions, had no effect in this large study with 12-month follow-up.

VII. PREVENTION

Birckmayer, J., & Hemenway, D. (1999). Minimum-age drinking laws and youth suicide, 1970–1990. *American Journal of Public Health* 89:1365–1368.

Gould, M. S., & Shaffer, D. (1986). The impact of suicide in television movies: evidence of imitation. *New England Journal of Medicine* 315:690–694.

Phillips, D. P. (1974). The influence of suggestion on suicide: substantive and theoretical implication of the Werther effect. *American Sociological Review* 9:340–354.

Phillips, D. P., & Carstensen, L. L. (1986). Clustering of teenage suicides after television news stories about suicide. *New England Journal of Medicine* 315:685–689.

Empirical study showing increase in youth suicide deaths after news reports of highly publicized suicide deaths.

Rihmer, Z., Rutz, W., & Pihlgren, H. (1995). Depression and suicide on Gotland. An intensive study of all suicides before and after a depression-training programme for general practitioners. *Journal of Affective Disorders* 35:147–152.

Shaffer, D., Garland, A., Gould, M., Fisher, P., & Trautman, P. (1988). Preventing teenage suicide – a critical review. *Journal of the American Academy of Child and Adolescent Psychiatry* 27.

Comprehensive review of models for suicide prevention and reviews of their efficacy.

Shaffer, D., Vieland, V., Garland, A., Rojas, M., Underwood, M., & Busner, C. (1990). Adolescent suicide attempters: response to suicide-prevention programs. *Journal of the American Medical Association* 264(24):3151–3155.

Shaffer, D., Garland, A., Vieland, V., Underwood, M., & Busner, C. (1991). The impact of curriculum-based suicide-prevention programs for teenagers. *Journal of American Academy of Child and Adolescent Psychiatry* 30:588–596.

Shaffer, D., Garland, A., Fisher, P., Bacon, K., & Vieland, V. (1990). Suicide crisis centers: a critical reappraisal with special reference to the prevention of youth suicide. In *Preventing Mental Health Disturbance in Childhood*, ed. F. E. Goldston, C. M. Heinecke, R. S. Pynoos, & J. Yager, 135–166. Washington, D.C.: American Psychiatric Press.

After televised broadcasts of films that dramatize youth suicide. A replication of this study appeared in Suicide and Life-Threatening Behavior (1988) 18:90–99.

VIII. PROBLEMS FOR SURVIVORS

Cain, A. C. (ed.) (1972). *Survivors of Suicide*. Springfield, IL: Thomas.

Foglia, B. B. (1977). Survivor-victims of suicide: review of the literature. In *Suicide: Assessment and Intervention*, ed. C. L. Hatton, S. M. Valente, & A. Rink (2nd ed., 1984). New York: Appleton-Century-Crofts.