50. Screening for Suicide Risk

RECOMMENDATION

There is insufficient evidence to recommend for or against routine screening by primary care clinicians to detect suicide risk in asymptomatic persons (see ***Clinical Intervention***). Clinicians should be alert to signs of suicidal ideation in persons with established risk factors. The training of primary care clinicians in recognizing and treating affective disorders is recommended. Clinicians should be alert to signs and symptoms of depression (see Chapter 49) and should routinely ask patients about their use of alcohol and other drugs (Chapters 52 and 53).

Burden of Suffering

In 1993, the age-adjusted rate of suicide in the U.S. was approximately 11.2 / 100,000 persons; 31,230 suicide deaths were reported.[1] The actual incidence is uncertain because suicidal intent is often difficult to prove after the fact; uniform criteria for declaring a death due to suicide have only recently been developed.[2] An estimated 210,000 persons attempt suicide each year, resulting in over 10,000 permanent disabilities, 155,500 physician visits, 259,200 hospital days, over 630,000 lost work days, and over $115 million in direct medical expenses.[3] The highest rate of completed suicide is among men aged 65 years and older, but suicide attempts are more commonly reported among women and among men and women aged 20–24 years.[4] The suicide rate in American teenagers has increased substantially in recent years.[5] Suicide is the third leading cause of death in persons 15–24 years old[1] as well as a leading cause of years of potential life lost.[6] Suicides among young persons may also lead to suicide clusters, in which a number of other adolescents in the same community commit suicide.[7]

The most important risk factor for suicide is psychiatric illness. The majority of suicide victims have affective, substance abuse, personality or other mental disorders.[8–9a] Persons with a history of one or more psychiatric hospital admissions carry a particularly high risk of suicide.[10] Other risk factors for suicide and attempted suicide, particularly in persons with underlying mental or substance abuse disorders, include social adjustment problems, serious medical illness, living alone, recent bereavement, personal or family history of suicide attempt, family history of completed suicide, divorce, separation, and unemployment.[4,8,11,12]

Firearms are used in about 60% of all suicides.[1,4,8,9,13] Firearm-related

deaths accounted for nearly all the increase in suicide rates during the 1980s.[14] Case-control studies have demonstrated that the risk of suicide is almost five times higher for persons who live in a household where at least one firearm is kept, when compared with persons who live in a household free of guns.[14a–16] The second most common means of suicide among males is hanging, whereas among females it is poisoning (drug overdose).[4] Alcohol intoxication is associated with at least 25–50% of all suicides[9] and is especially common in suicides involving firearms.[4]

Accuracy of Screening Tests

About one half to two thirds of persons who commit suicide visit physicians less than 1 month before the incident, and 10–40% visit in the preceding week.[9,17] It is often difficult, however, for physicians to identify suicidal patients accurately. Direct questions about suicidal intent may have low yield; only 3–5% of persons threatening suicide express unequivocal certainty that they want to die.[18] Nearly 30% of American high school students report having seriously thought about committing suicide,[19,20] making it unlikely that suicidal thoughts alone would be a useful index of suspicion in this population. Although the clinician can identify established risk factors in the medical history (e.g., psychiatric illness, prior suicide attempt, access to firearms, substance abuse, recent life event such as death or divorce), the majority of patients with these characteristics do not intend to kill themselves.[21,22] Asking general medical patients about sleep disturbance, depressed mood, guilt, and hopelessness correctly identified 84% of those who had experienced suicidal thoughts within the previous year.[22a] The study was not designed to assess actual suicide risk, however, and has not been replicated in the clinical setting. If validated, these questions may identify patients who may benefit from in-depth evaluation for suicide risk.

Researchers have attempted to identify specific risk factors that are the strongest predictors of suicidal behavior. Many studies have shown, however, that structured instruments to assess these risk factors misclassified many persons as high risk who did not subsequently attempt suicide and (with some instruments) identified many as low risk who did commit suicide.[23–28] For example, one scoring system,[25] based on 4–6 years of longitudinal data from 4,800 psychiatric patients, was able to identify correctly 35 of 63 (56%) subsequent suicides, but it generated 1,206 false positives (positive predictive value less than 3%).

Also, physicians may not effectively assess risk factors for suicide, such as previous suicide attempts or psychiatric illness. In one study of completed suicides,[29] over two thirds of victims had made previous attempts or threats, but only 39% of their physicians were aware of this history. Although psychological autopsy studies (retrospective psychiatric evaluation

based on interviews with survivors) reveal that nearly all victims have evidence of previous psychiatric diagnoses (e.g., depression, bipolar disorder, alcohol and other drug abuse, schizophrenia) and previous psychiatric treatment,[17,21,30] many primary care clinicians fail to recognize the presence of mental illness. Several studies have shown that depression is frequently overlooked (see Chapter 49), as is substance abuse (see Chapters 52 and 53). Improved early detection of these conditions might help persons at risk for suicide, but further research is needed to evaluate its effectiveness in reducing suicide rates.

Recent studies have identified evidence of altered serotonin activity in patients who complete suicide, particularly those with depression and schizophrenia.[31–33] No studies have evaluated these biochemical markers as screening tools in the general population.

Effectiveness of Early Detection

Suicide is a relatively rare event, and large samples and lengthy follow-up would be needed for studies to demonstrate significant reduction in suicide rates as a result of a specific intervention such as mental health counseling and hospitalization, limitation of access to potential instruments of suicide, and treatment of underlying conditions.[18] Although these measures seem to be clinically prudent, no direct evidence that they reduce suicide rates was found. Effects on less specific outcome measures, such as feelings of hopelessness,[34] have been reported. Even in the setting of attempted suicide, there is limited and conflicting evidence that intervention is beneficial; but there is also no conclusive evidence that it is not. Surveys indicate that patients receiving psychiatric consultation for attempted suicide find the therapy to be of limited benefit,[35] and 35–40% choose not to remain in treatment.[36,37] One study of hospitalized patients admitted for poisoning or self-inflicted injury reported fewer subsequent suicide attempts in persons who received psychiatric counseling than in controls who were discharged prematurely before seeing a psychiatrist.[38] Another cohort study of patients hospitalized for self-poisoning found no difference in subsequent suicide attempts among patients who attended psychiatric outpatient follow-up and those who did not.[39] Among suicide attempters without immediate psychiatric or medical needs randomized to receive hospital admission or discharge home, there were no differences in psychological testing or further suicide attempts between the two groups at 1 week; long-term follow-up was not evaluated, however.[40] Some selection biases were apparent in all of these studies, thereby limiting the generalizability of their results to all suicide attempters. Findings from these studies may not be applicable to successful suicide because people who attempt and those who complete suicide may differ. Involuntary hospitalization can be of immediate benefit to persons planning suicide and is often re-

quired for medicolegal reasons in persons with suspected suicidal ideation,[41,42] but no reliable data on the long-term effectiveness of this measure were found.

Another potential intervention is limiting access to the most common instruments of suicide, such as firearms and drugs. Although there is no direct evidence that removal of firearms can prevent suicide, studies have shown that geographic locations with reduced availability of these weapons have lower suicide rates among adolescents and young adults.[8,43] Studies of deaths by drug overdose have found that, in over half of cases, the ingested drugs were either prescribed by a physician within the preceding week or were provided in a refillable prescription.[44] There is little information, however, on how the physician can best identify persons who require nonlethal quantities of prescription drugs, or whether these measures will prevent subsequent suicide. Legislation in one country restricting the prescription of sedatives may have been associated with a reduced rate of suicide, but the evidence was not conclusive.[45]

Since it has been estimated that as many as 90% of persons who commit suicide suffer from psychiatric disorders, it is possible that treatment of these underlying illnesses may prevent suicide.[34] Indirect evidence suggests that patients with affective disorders who receive comprehensive psychiatric care have lower suicide rates than most persons with psychiatric illnesses,[46,47] but studies with control groups are needed to exclude the possibility of selection bias in these results. A Swedish population-based time series study evaluated suicide rates before and 1 year after all postgraduate physicians in a community were trained to recognize and manage affective disorders appropriately.[48] The suicide rate in the community decreased 50% in the year following the program, which was significant compared to previous trends in that community and to national rates in Sweden. Repetition of these results in a controlled trial with longer follow-up is needed. As many as 50% of persons who kill themselves are intoxicated with alcohol or other drugs,[9] and a significant proportion also suffer from a substance abuse disorder.[8] Early detection and treatment of alcohol and other drug abuse has the potential to prevent suicide, but firm evidence of this effect is lacking.

Recommendations of Other Groups

The American Academy of Pediatrics recommends asking all adolescents about suicidal thoughts during the routine medical history.[49] The American Medical Association[50] and Bright Futures[51] recommend that providers screen adolescents annually to identify those at risk for suicide.

The Canadian Task Force on the Periodic Health Examination found insufficient evidence to recommend for or against the inclusion of suicide risk evaluation in the periodic health examination. Based on the high bur-

den of suffering, however, they recommend that clinicians routinely evaluate the risk of suicide among persons in high-risk groups, particularly if there is evidence of psychiatric disorder (especially psychosis), depression, or substance abuse, or if the patient has recently attempted suicide or has a family member who committed suicide.[52] The recommendations of the American Academy of Family Physicians are currently under review.

Discussion

Suicide is a leading cause of death in the U.S., but there is no evidence that screening the general population for suicide risk is effective in reducing suicide rates. Routine medical history is often not sufficient to recognize suicide risk or suicidal intent. Several screening instruments have been developed to identify risk factors, but these do not accurately predict the likelihood of suicide. Even when a risk factor or suicidal intent is detected, there is weak evidence that interventions effectively reduce suicide rates. Several studies have evaluated treatment of those who attempt suicide, but results were conflicting, and these studies may not be generalizable to the population of those who complete suicide. Training primary care clinicians to recognize and treat appropriately underlying mental health problems such as depression and substance abuse may be effective, but long-term controlled studies have yet to be performed.

CLINICAL INTERVENTION

There is insufficient evidence to recommend for or against routine screening by primary care clinicians to detect suicide risk in asymptomatic persons (“C” recommendation). Clinicians should be alert to evidence of suicidal ideation when the history reveals risk factors for suicide, such as depression, alcohol or other drug abuse, other psychiatric disorder, prior attempted suicide, recent divorce, separation, unemployment, and recent bereavement. Patients with evidence of suicidal ideation should be questioned regarding the extent of preparatory actions (e.g., obtaining a weapon, making a plan, putting affairs in order, giving away prized possessions, preparing a suicide note). It may also be prudent to question the person’s family members regarding such actions. Persons with evidence of suicidal intent should be offered mental health counseling and possibly hospitalization.

The training of primary care clinicians in recognizing and treating affective disorders in order to prevent suicide is recommended (“B” recommendation). Clinicians should be alert to signs of depression (see Chapter 49) and other psychiatric illnesses, and they should routinely ask patients about their use of alcohol and other drugs (see Chapters 52 and

53). Patients who are judged to be at risk should receive evaluation for possible psychiatric illness, including substance abuse, and counseling and referral as needed.

Patients who are recognized as having suicidal ideation, or patients who suspect suicidal thoughts in their relatives or friends, should be made aware of available community resources such as local mental health agencies and crisis intervention centers. Parents and homeowners should also be counseled to restrict unauthorized access to potentially lethal prescription drugs and to firearms within the home (also see Chapters 58 and 59).

The draft update of this chapter was prepared for the U.S. Preventive Services Task Force by S. Patrick Kachur, MD, MPH, and Carolyn DiGuiseppi, MD, MPH.

REFERENCES

1. National Center for Health Statistics. Annual summary of births, marriages, divorces, and deaths: United States, 1993. Monthly vital statistics report; vol 42 no 13. Hyattsville, MD: Public Health Service, 1994.
2. Centers for Disease Control. Operational criteria for determining suicide. MMWR 1988;37:773–774, 779–780.
3. Rosenberg ML, Gelles RJ, Holinger PC, et al. Violence: homicide, assault, and suicide. In: Amler RW, Dull BH, eds. Closing the gap: the burden of unnecessary illness. New York: Oxford University Press, 1987:164–178.
4. Baker SP, O'Neill B, Ginsburg MG, et al. The injury fact book. New York: Oxford University Press, 1992:65–77.
5. Centers for Disease Control and Prevention. Suicide among children, adolescents, and young adults—United States, 1980–1991. MMWR 1995;44:289–291.
6. Centers for Disease Control and Prevention. Years of potential life lost before age 65—United States, 1990 and 1991. MMWR 1993;42:251–253.
7. Gould MS, Wallenstein S, Kleinman MH. Time-space clustering of teenage suicide. Am J Epidemiol 1990;131: 71–78.
8. Monk M. Epidemiology of suicide. Epidemiol Rev 1987;9:51–69.
9. Blumenthal SJ. Suicide: a guide to risk factors, assessment, and treatment of suicidal patients. Med Clin North Am 1988;72:937–971.

9a. Brent DA, Perper JA, Moritz G, et al. Psychiatric risk factors for adolescent suicide: a case-control study. J Am Acad Child Adolesc Psychiatry 1993;32:521–529.

10. Allebeck P, Allgulander C. Psychiatric diagnoses as predictors of suicide; a comparison of diagnoses at conscription and in psychiatric care in a cohort of 50,465 young men. Br J Psychiatry 1990;157:339–344.
11. Lewinsohn PM, Rohde P, Seeley JR. Psychosocial characteristics of adolescents with a history of suicide attempt. J Am Acad Child Adolesc Psychiatry 1993;32:60–68.
12. Pfeffer CR, Klerman GL, Hurt SW, et al. Suicidal children grow up: rates and psychosocial risk factors for suicide attempts during follow-up. J Am Acad Child Adolesc Psychiatry 1993;32:106–113.
13. Moscicki EK, Boyd JH. Epidemiological trends in firearm suicides among adolescents. Pediatrician 1983–85;12: 52–62.
14. Centers for Disease Control and Prevention. Surveillance summary report: suicide in the United States, 1980–1990. Atlanta, GA: Centers for Disease Control and Prevention, 1994.

14a. Brent DA, Perper JA, Moritz G, et al. Firearms and adolescent suicide: a community case-control study. Am J Dis Child 1993;147:1066–1071.

15. Brent DA, Perper JA, Allman CJ, et al. The presence and accessibility of firearms in the homes of adolescent suicides, a case-control study. JAMA 1991;266:2989–2995.
16. Kellerman AL, Rivara FP, Somes G, et al. Suicide in the home in relation to gun ownership. N Engl J Med 1992;327: 467–472.
17. Robins E, Murphy GE, Wilkinson RH Jr, et al. Some clinical considerations in the prevention of suicide based on a study of 134 successful suicides. Am J Public Health 1959;49:888–899.

18. Pfeffer CR. Suicide prevention: current efficacy and future promise. Ann NY Acad Sci 1986;487:341–350.
19. Centers for Disease Control. Attempted suicide among high school students—United States, 1990. MMWR 1991; 40:1–3.
20. Shaffer D, Garland A, Gould M, et al. Preventing teenage suicide: a critical review. J Am Acad Child Adolesc Psychiatry 1988;27:675–687.
21. Mann JJ. Psychobiologic predictors of suicide. J Clin Psychiatry 1987;48(Suppl 12):39–43.
22. Murphy GE. On suicide prediction and prevention. Arch Gen Psychiatry 1983;40:343–344.
22a. Cooper-Patrick L, Crum RM, Ford DE. Identifying suicidal ideation in general medical patients. JAMA 1994;272: 1757–1762.
23. Motto JA, Heilbron DC, Juster RP. Development of a clinical instrument to estimate suicide risk. Am J Psychiatry 1985;142:680–686.
24. Erdman HP, Greist JH, Gustafson DH, et al. Suicide risk prediction by computer interview: a prospective study. J Clin Psychiatry 1987;48:464–467.
25. Pokorny AD. Prediction of suicide in psychiatric patients: report of a prospective study. Arch Gen Psychiatry 1983;40:249–257.
26. Beck AT, Brown G, Berchick RJ, et al. Relationship between hopelessness and ultimate suicide: a replication with psychiatric outpatients. Am J Psychiatry 1990;147:190–195.
27. Rydin E, Asberg M, Edman G, et al. Violent and nonviolent suicide attempts—a controlled Rorschach study. Acta Psychiatr Scand 1990;82:30–39.
28. Goldstein RB, Black DW, Nasrallah A, et al. The prediction of suicide: sensitivity, specificity, and predictive value of a multivariate model applied to suicide among 1906 patients with affective disorders. Arch Gen Psychiatry 1991;48: 418–422.
29. Murphy GE. The physician's responsibility for suicide. II. Errors of omission. Ann Intern Med 1975; 82:305–309.
30. Rich CL, Young D, Fowler RC. San Diego suicide study. I. Young vs. old subjects. Arch Gen Psychiatry 1986;43: 577–582.
31. Pandey GN, Pandey SC, Janicak PG, et al. Platelet serotonin-2 receptor binding sites in depression and suicide. Biol Psychiatry 1990;28:215–222.
32. Wetzler S, Kahn RS, Asnis GM, et al. Serotonin receptor sensitivity and aggression. Psychiatry Res 1991;37: 271–279.
33. Cooper SJ, Kelley CB, King DJ. 5-Hydroindoleacetic acid in cerebrospinal fluid and prediction of suicidal behavior in schizophrenia. Lancet 1992;340:940–941.
34. Blumenthal SJ, Kupfer DJ. Generalizable treatment strategies for suicidal behavior. Ann NY Acad Sci 1986;487: 327–339.
35. Hengleveld MW, Kerkof AJFM, van der Wal J. Evaluation of psychiatric consultations with suicide attempters. Acta Psychiatr Scand 1988;77:283–289.
36. Morgan HG, Barton J, Pottle S, et al. Deliberate self-harm: a follow-up study of 279 patients. Br J Psychiatry 1976;128:361–368.
37. van Aalst JA, Shotts SD, Vitsky JL, et al. Long-term follow-up of unsuccessful violent suicide attempts: risk factors for subsequent attempts. J Trauma 1992;33:457–464.
38. Greer S, Bagley C. Effect of psychiatric intervention in attempted suicide: a controlled study. BMJ 1971;1:310–312.
39. Ojehagen A, Danielsson M, Traskman-Bendz L. Deliberate self-poisoning: a treatment follow-up of repeaters and nonrepeaters. Acta Psychiatr Scand 1992;85:370–375.
40. Waterhouse J, Platt S. General hospital admission in the management of parasuicide; a randomized controlled trial. Br J Psychiatry 1990;156:236–242.
41. Waltzer H. Malpractice liability in a patient's suicide. Am J Psychother 1980;34:89–98.
42. Wise TN, Berlin R. Involuntary hospitalization: an issue for the consultation-liaison psychiatrist. Gen Hosp Psychiatry 1987;9:40–44.
43. Sloan JH, Rivara FP, Reay DT, et al. Firearm regulations and rates of suicide: a comparison of two metropolitan areas. N Engl J Med 1990;322:369–373.
44. Murphy GE. The physician's responsibility for suicide. I. An error of commission. Ann Intern Med 1975;82:301–304.
45. Goldney RD, Katsikitas M. Cohort analysis of suicide rates in Australia. Arch Gen Psychiatry 1983;40:71–74.
46. Martin RL, Cloninger R, Guxe SB, et al. Mortality in a follow-up of 500 psychiatric outpatients. Arch Gen Psychiatry 1985;42:58–66.

47. Jamison KR. Suicide and bipolar disorders. Ann NY Acad Sci 1986;487:301–315.
48. Rutz W, von Knorring L, Walinder J. Frequency of suicide on Gotland after systematic postgraduate education of general practitioners. Acta Psychiatr Scand 1989;80:151–154.
49. American Academy of Pediatrics, Committee on Adolescence. Suicide and suicide attempts in adolescents and young adults. Pediatrics 1988;81:322–324.
50. American Medical Association. Guidelines for adolescent preventive services (GAPS): recommendations and rationale. Chicago: American Medical Association, 1994:131–143.
51. Green M, ed. Bright Futures: guidelines for health supervision of infants, children, and adolescents. Arlington, VA: National Center for Education in Maternal and Child Health, 1994.
52. Canadian Task Force on the Periodic Health Examination. Canadian guide to clinical preventive health care. Ottawa: Canada Communication Group, 1994:456–470.