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## Operational Criteria for the Determination of Suicide

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**REFERENCE:** Rosenberg, M. L., Davidson, L. E., Smith, J. C., Berman, A. L., Buzbee, H., Gantner, G., Gay, G. A., Moore-Lewis, B., Mills, D. H., Murray, D., O'Carroll, P. W., and Jobes, D., "Operational Criteria for the Determination of Suicide," *Journal of Forensic Sciences*, JFSCA, Vol. 33, No. 6, Nov. 1988, pp. 1445-1456.

**ABSTRACT:** Suicide is an important public health problem for which we have an inadequate public health database. In the United States, decisions about whether deaths are listed as suicides on death certificates are usually made by a coroner or medical examiner. These certification decisions are frequently marked by a lack of consistency and clarity, and laws and procedures for guiding these decisions vary from state to state and even from county to county.

Without explicit criteria to aid in this decision making, coroners or medical examiners may be more susceptible to pressures from families or communities not to certify specific deaths as suicide. In addition, coroners or medical examiners may certify similar deaths differently at different times. The degree to which suicides may be underreported or misclassified is unknown. This makes it impossible to estimate accurately the number of deaths by suicide, to identify risk factors, or to plan and evaluate preventive interventions.

To remedy these problems, a working group representing coroners, medical examiners, statisticians, and public health agencies developed operational criteria to assist in the determination of suicide. These criteria are based on a definition of suicide as "death arising from an act inflicted upon oneself with the intent to kill oneself." The purpose of these criteria is to improve the validity and reliability of suicide statistics by: (1) promoting consistent and uniform classifications; (2)

Received for publication 26 Oct. 1987; revised manuscript received 19 Feb. 1988; accepted for publication 9 March 1988.

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making the criteria for decision making in death certification explicit; (3) increasing the amount of information used in decision making; (4) aiding certifiers in exercising their professional judgment; and (5) establishing common standards of practice for the determination of suicide.

**KEYWORDS:** pathology and biology, suicide, death certificates, criteria

Each year death certificates are filled out by thousands of different certifiers. On each death certificate the manner of death must be indicated as either "natural," "accident," "suicide," "homicide," or "could not be determined" (Fig. 1). State laws usually require that when a death is a suspected suicide or homicide, a medical examiner or coroner complete the death certificate. Although the accuracy of one single certificate may not appear important, collectively the enormous number of death certificates filed becomes the primary data source for mortality statistics in the United States. These data in turn affect the course of health care research, the flow of resources, and, ultimately, public health policy. As the eighth leading cause of death among Americans [1], suicide represents a major public health concern and a manner of death particularly subject to inaccurate determination. While this may result in a significant understatement of the actual number of suicides, there is no way at the present time to quantify the size of this understatement; estimates range from 10 to 50% [2-7]. Since public health priorities are influenced by the perceived magnitude of the problem, underreporting suicide can adversely affect competition of worthy suicide research, prevention, and intervention efforts for finite resources. Improving the accuracy of suicide determination would enhance our ability to direct an appropriate level of resources to appropriate parts of this crucial problem. In addition, since inaccurately certified or unreported suicides might have characteristics different from those of reported suicides, more accurate reporting may improve our understanding of the risk factors for suicide and ultimately improve our ability to prevent these deaths.

Many factors work against valid and reliable certification of suicide [8,9]. The determination of suicide requires establishing that the death was both self-inflicted and intentional. For most certifiers, establishing intentionality is the most difficult criterion. The coroner's or medical examiner's suspicion of suicide may be overridden by his or her reluctance to impose social stigma, guilt, and a possible loss of insurance benefits on a suicide victim's family. Many certifiers lack explicit criteria for assessing suicidal intent. Without specified criteria, certifiers might seek and collect a more narrow range of evidence concerning intent [10]. Thus, a certifier may conclude that a death was not a suicide because the available evidence proving intent was not collected. In other words, with respect to intent, absence of evidence is not evidence of absence.

Some certifiers might require a suicide note for certifying a death as suicide. Yet, only about one third of those who actually commit suicide leave suicide notes [11]. Forensic science experts may also differ widely on the proper certification of deaths for decedents who were psychotic, very young, or intoxicated with alcohol or drugs [7].

True suicides may be certified as "accidents" or "deaths from natural causes" or listed as "manner of death undetermined." Each inaccurate certification of a true suicide becomes an error in certification for the alternative manner of death reported: accidental, natural, homicide, or undetermined.

With these public health implications in mind, a working group was formed to develop operational criteria for the determination of suicide (OCDS) and thereby improve national suicide statistics. Representatives from a number of interested organizations comprised the working group: the American Academy of Forensic Sciences (AAFS), American Association of Suicidology (AAS), Association of Vital Records and Health Statistics (AVRHS), Centers for Disease Control (CDC), International Association of Coroners and Medical Examiners

**U.S. STANDARD  
CERTIFICATE OF DEATH**

LOCAL FILE NUMBER \_\_\_\_\_ STATE FILE NUMBER \_\_\_\_\_

**1. DECEDENT'S NAME (First, Middle, Last)** \_\_\_\_\_ **2. SEX** \_\_\_\_\_ **3. DATE OF DEATH (Month, Day, Year)** \_\_\_\_\_

**4. SOCIAL SECURITY NUMBER** \_\_\_\_\_ **5a. AGE—Last Birthday (Years)** \_\_\_\_\_ **5b. UNDER 1 YEAR** \_\_\_\_\_ **5c. UNDER 1 DAY** \_\_\_\_\_ **6. DATE OF BIRTH (Month, Day, Year)** \_\_\_\_\_ **7. BIRTHPLACE (City and State or Foreign Country)** \_\_\_\_\_

**8. WAS DECEDENT EVER IN U.S. ARMED FORCES? (Yes or no)** \_\_\_\_\_ **9a. PLACE OF DEATH (Check only one, see instructions on other side)**  
 HOSPITAL ☐ Inpatient ☐ ER/Outpatient ☐ DOA ☐ OTHER ☐ Nursing Home ☐ Residence ☐ Other (Specify) \_\_\_\_\_

**9b. FACILITY NAME (If not institution, give street and number)** \_\_\_\_\_ **9c. CITY, TOWN, OR LOCATION OF DEATH** \_\_\_\_\_ **9d. COUNTY OF DEATH** \_\_\_\_\_

**10. MARITAL STATUS—Married, Never Married, Widowed, Divorced (Specify)** \_\_\_\_\_ **11. SURVIVING SPOUSE (If wife, give maiden name)** \_\_\_\_\_ **12a. DECEDENT'S USUAL OCCUPATION (Give kind of work done during most of working life. Do not use retired)** \_\_\_\_\_ **12b. KIND OF BUSINESS/INDUSTRY** \_\_\_\_\_

**13a. RESIDENCE—STATE** \_\_\_\_\_ **13b. COUNTY** \_\_\_\_\_ **13c. CITY, TOWN, OR LOCATION** \_\_\_\_\_ **13d. STREET AND NUMBER** \_\_\_\_\_

**13e. INSIDE CITY LIMITS? (Yes or no)** \_\_\_\_\_ **13f. ZIP CODE** \_\_\_\_\_ **14. WAS DECEDENT OF HISPANIC ORIGIN? (Specify No or Yes—If yes, specify Cuban, Mexican, Puerto Rican, etc.)** \_\_\_\_\_ **15. RACE—American Indian, Black, White, etc. (Specify)** \_\_\_\_\_ **16. DECEDENT'S EDUCATION (Specify only highest grade completed)**  
 Elementary/Secondary (0-12) \_\_\_\_\_ College (1-4 or 5+) \_\_\_\_\_

**17. FATHER'S NAME (First, Middle, Last)** \_\_\_\_\_ **18. MOTHER'S NAME (First, Middle, Maiden Surname)** \_\_\_\_\_

**19a. INFORMANT'S NAME (Type/Print)** \_\_\_\_\_ **19b. MAILING ADDRESS (Street and Number or Rural Route Number, City or Town, State, Zip Code)** \_\_\_\_\_

**20a. METHOD OF DISPOSITION**  
☐ Burial ☐ Cremation ☐ Removal from State  
☐ Donation ☐ Other (Specify) \_\_\_\_\_

**20b. PLACE OF DISPOSITION (Name of cemetery, crematory, or other place)** \_\_\_\_\_ **20c. LOCATION—City or Town, State** \_\_\_\_\_

**21a. SIGNATURE OF FUNERAL SERVICE LICENSEE OR PERSON ACTING AS SUCH** \_\_\_\_\_ **21b. LICENSE NUMBER (of Licensee)** \_\_\_\_\_ **22. NAME AND ADDRESS OF FACILITY** \_\_\_\_\_

**23a. To the best of my knowledge, death occurred at the time, date, and place stated.** \_\_\_\_\_ **23b. LICENSE NUMBER** \_\_\_\_\_ **23c. DATE SIGNED (Month, Day, Year)** \_\_\_\_\_

**24. TIME OF DEATH** \_\_\_\_\_ **25. DATE PRONOUNCED DEAD (Month, Day, Year)** \_\_\_\_\_ **26. WAS CASE REFERRED TO MEDICAL EXAMINER/CORONER? (Yes or no)** \_\_\_\_\_

**27. PART I. Enter the diseases, injuries, or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock, or heart failure. List only one cause on each line.**  
 IMMEDIATE CAUSE (Final disease or condition resulting in death) → a. \_\_\_\_\_ DUE TO (OR AS A CONSEQUENCE OF): \_\_\_\_\_  
 b. \_\_\_\_\_ DUE TO (OR AS A CONSEQUENCE OF): \_\_\_\_\_  
 c. \_\_\_\_\_ DUE TO (OR AS A CONSEQUENCE OF): \_\_\_\_\_  
 d. \_\_\_\_\_ DUE TO (OR AS A CONSEQUENCE OF): \_\_\_\_\_

**28a. WAS AN AUTOPSY PERFORMED? (Yes or no)** \_\_\_\_\_ **28b. WERE AUTOPSY FINDINGS AVAILABLE PRIOR TO COMPLETION OF CAUSE OF DEATH? (Yes or no)** \_\_\_\_\_

**29. MANNER OF DEATH**  
☐ Natural ☐ Pending Investigation ☐ Accident ☐ Suicide ☐ Could not be Determined ☐ Homicide

**30a. DATE OF INJURY (Month, Day, Year)** \_\_\_\_\_ **30b. TIME OF INJURY** \_\_\_\_\_ **30c. INJURY AT WORK? (Yes or no)** \_\_\_\_\_ **30d. DESCRIBE HOW INJURY OCCURRED** \_\_\_\_\_

**30e. PLACE OF INJURY—At home, farm, street, factory, office building, etc. (Specify)** \_\_\_\_\_ **30f. LOCATION (Street and Number or Rural Route Number, City or Town, State)** \_\_\_\_\_

**31a. CERTIFIER (Check only one)**  
☐ CERTIFYING PHYSICIAN (Physician certifying cause of death when another physician has pronounced death and completed item 23) To the best of my knowledge, death occurred due to the cause(s) and manner as stated.  
☐ PRONOUNCING AND CERTIFYING PHYSICIAN (Physician both pronouncing death and certifying to cause of death) To the best of my knowledge, death occurred at the time, date, and place, and due to the cause(s) and manner as stated.  
☐ MEDICAL EXAMINER/CORONER On the basis of examination and/or investigation, in my opinion, death occurred at the time, date, and place, and due to the cause(s) and manner as stated.

**31b. SIGNATURE AND TITLE OF CERTIFIER** \_\_\_\_\_ **31c. LICENSE NUMBER** \_\_\_\_\_ **31d. DATE SIGNED (Month, Day, Year)** \_\_\_\_\_

**32. NAME AND ADDRESS OF PERSON WHO COMPLETED CAUSE OF DEATH (ITEM 27) (Type/Print)** \_\_\_\_\_

**33. REGISTRAR'S SIGNATURE** \_\_\_\_\_ **34. DATE FILED (Month, Day, Year)** \_\_\_\_\_

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FIG. 1—U.S. Standard Certificate of Death.

(IACME), National Association of Counties (NACO), National Association of Medical Examiners (NAME), and National Center for Health Statistics (NCHS). The representatives developed operational criteria and refined them by obtaining comments from their respective organizations on multiple revisions. Other leaders in the areas of suicide and medical and psychiatric classification critiqued drafts of the criteria, and their comments were reviewed and incorporated by the group.

## Criteria for the Determination of Suicide

### *Self-Inflicted*

There is evidence that death was self-inflicted. This may be determined by pathological (autopsy), toxicological, investigatory, and psychological evidence, and statements of the decedent or witnesses.

### *Intent*

There is evidence (explicit, implicit, or both) that at the time of injury the decedent intended to kill himself or herself or wished to die and that the decedent understood the probable consequences of his or her actions.

1. Explicit verbal or nonverbal expression of intent to kill self.
2. Implicit or indirect evidence of intent to die, such as
  - preparations for death inappropriate to or unexpected in the context of the decedent's life,
  - expression of farewell or the desire to die or an acknowledgment of impending death,
  - expression of hopelessness,
  - expression of great emotional or physical pain or distress,
  - effort to procure or learn about means of death or to rehearse fatal behavior,
  - precautions to avoid rescue,
  - evidence that decedent recognized high potential lethality of means of death,
  - previous suicide attempt,
  - previous suicide threat,
  - stressful events or significant losses (actual or threatened), or
  - serious depression or mental disorder.

## Elaboration of Specific Terms for the Determination of Suicide

The following discussion of specific terms and parts of the criteria is meant to reduce ambiguity and clarify the actual use of the criteria in certifying deaths.

### *Self-Inflicted*

Pathological evidence from an autopsy may indicate the relative probability of a particular injury being self-inflicted. A bullet wound is more likely to have been self-inflicted, for example, if autopsy evidence indicates that a gun had been fired from a distance close enough to leave powder burns on the skin or to cause a contact wound.

Toxicologic evidence might indicate if death resulted from a potentially lethal substance that was accessible to the decedent. Toxicologic screens are limited, however, by their sensitivity and specificity and by the range of specific toxins they are designed to detect. A full analysis, however, might pick up any drug or metabolite. In addition, an individual may survive long enough to allow the substance to "metabolize away" or diminish to a nonlethal or nondetectable level. In many possible suicides, toxicologic studies may not have been performed if suicide had not been suspected or if appropriate specimens had not been obtained at the time of death.

Investigational evidence includes data from police reports; photographs, notes, and diagrams from the scene of death; and information collected from the deceased's medical or mental health records.

Psychological evidence includes explicit or implicit evidence that the decedent planned to harm himself or herself based on observed behaviors, communications, and characteriza-

tions of personality, habit, and life-style. This evidence may be gathered through interviews with family, friends, employers, physicians, and others in a position to provide relevant information about the decedent. Standardized interview formats for such investigations are available and can be routinely completed with a minimum of time and personnel for most cases. Routine police reports of death investigations frequently do not provide the minimum necessary information.

Statements by the deceased can also constitute evidence as to whether or not the injury was self-inflicted. Verbal statements may have been made indirectly in the course of conversation, directly to a witness, or recorded on audiotape or videotape. Written statements may include diaries, letters, drawings, or notes (handwritten, typed, or stored in a word processor, tape, or diskette).

### *Intent*

Whether or not the decedent intended to kill himself or herself is usually more difficult to determine than whether the injury was self-inflicted or not. "Intent" requires that the decedent knew or had in mind that a specific act would probably result in death. Alcohol, drugs, mental illness, or youth may all contribute to an individual's inability to have the mental capacity to form intention. But evidence that the decedent consumed a large amount of alcohol before death, for example, does not by itself demonstrate inability to form intent. In such a case, the investigator should attempt to determine whether or not evidence demonstrated that the subject had intended to kill himself or herself before becoming too intoxicated to form intent. About 25% of all suicides involve recent alcohol consumption [12]. In all such cases, the specific relationship of alcohol consumption to formation of intent should be examined. Similarly, mental illness does not make it impossible to form intent: it is important to look for specific evidence that the deceased understood and intended the likely consequences of this act near the time he or she decided to proceed with the act. Conversely, evidence may suggest that the decedent had an impaired state of consciousness or impaired judgment at the time the critical decision was made; impairment may have been due to alcohol, drugs, metabolic state, or illness.

Specific types of evidence often suggest that death resulted from unintended or accidental injuries. First, evidence may show that the subject intended to survive. The subject may have a history of carelessness, poor judgment, or previous unintentional injuries similar to the fatal injury. In the case of death as a result of drug or alcohol overdose, a subject's history of nonfatal abuse of the same substances suggests that the fatal overdose might have been unintentional. A history of previous misuse of a fatal modality with evidence that self-destructive consequences were not intended (such as playing with loaded guns, driving recklessly, or playing on high, unprotected ledges) suggests that death might have been unintentional. Finally, evidence that the subject did not recognize the high potential lethality of the means of injury could indicate the death was unintentional.

Several types of death present more difficult decisions to the person completing the death certificate. Since even experts disagree as to whether or not Russian roulette should be classified as suicide, establishing criteria for such decisions is essential. Drug or alcohol intoxication raises the difficult questions of whether or not the fatal outcome was intended or accidental and whether or not the individual had the mental capacity to form intention. Single motor-vehicle crashes may result from suicidal behavior, for instance, and may be too commonly dismissed as "accidents" [13]. Intent is often difficult to determine in the following situations: (1) when death is delayed or when it is the unanticipated consequence of a potentially self-destructive act; (2) when a body is never found; (3) when drownings, leaps, or falls are unwitnessed; or (4) when the death is of a child too young to realize the consequences of jumping from a window, swallowing poison, or running in front of a car.

In these criteria, the term "implicit evidence of intent" refers to an indicator of intent

communicated by the decedent but not explicitly stated; "indirect" evidence includes what are commonly called "risk factors." A risk factor is an attribute or exposure that is associated with an increased likelihood of suicide; a risk factor is not necessarily a causal factor. A family history of suicide, for example, is a risk factor but not an implicit indicator of intent or implicit evidence of an intention to commit suicide.

### **Specific Phrases and Criteria Related to Intent—Explanations and Examples**

The types of evidence of intent that follow *are not* listed in order of significance or importance. Examples of verbal expressions include written diary notes, audiotape recordings, and videotape messages; nonverbal expressions might include drawings or a very recent, potentially lethal attempt where a timely discovery led to rescue. This list is not meant to be exhaustive. Recent behaviors and feelings are deemed more important, but historical data also bear on the decision. Serious depression, for example, is usually a recurrent problem, and a person who has experienced a serious depression in the past is at higher risk of another depressive episode years later [14].

1. *Preparations for death inappropriate to or unexpected in the context of the decedent's life.* Examples: Unexplained giving away of possessions and making provisions for the future care of children or pets.

2. *Expression of farewell or the desire to die or an acknowledgment of impending death.* Examples: "I won't be here to be kicked around anymore"; "You were real important to me"; "Have a good life"; "You'll be sorry when I'm gone"; "I can't stay around to face the future."

3. *Expression of hopelessness.* Examples: "It just doesn't matter anymore"; "It wouldn't make any difference if I . . ."; "What's the use of . . .?" Actions signaling hopelessness include giving up activities or medical treatments that are clearly necessary to sustain life.

4. *Expression of great emotional or physical pain or distress.* Examples: "This pain is killing me; I can't stand it anymore"; "I cannot live like this"; "It is too much for me to take." Indirect manifestations of extreme pain may be seen in failures to obtain relief from standard medical treatments.

5. *Effort to procure or learn about means of death or rehearse fatal behavior.* Examples: Recently purchasing firearms or ammunition, stockpiling potentially lethal drugs, purchasing rope, and obtaining access to high places.

6. *Precautions to avoid rescue.* Examples: Locking doors, going to a prearranged, secluded place, telling lies about one's whereabouts, and arranging to be alone.

7. *Evidence that decedent recognized high potential lethality of means of death.* Examples: A pharmacist or physician taking an overdose of a highly lethal drug or the decedent's "researching" different drugs to determine their degree of lethality.

8. *Previous suicide attempt.* Previous attempts include self-destructive acts carried out with the goal of killing oneself or with an awareness that the consequences could be lethal. The more recent attempts and those with a high potential lethality may be more significant indicators of intent. Previous attempts, however, need not be recent or potentially highly lethal. Furthermore, the methods used in the previous attempts may differ.

9. *Previous suicide threat.* A "threat" need not be a coercive statement made to force another person to do something—it can be a statement of intent. Examples of threats include playing with a gun and saying "I'm going to shoot myself." Thoughts or fantasies about suicide (such as an imagined reunion with a dead relative) should be differentiated from threats, although questions about such thoughts or fantasies should be asked.

10. *Stressful events or significant losses (actual or threatened).* Examples: Loss of a relationship (with a boyfriend, girlfriend, child, or spouse), intangible losses (not being elected to a desired office or being passed over for a promotion), loss of self-esteem, or financial



losses. Anticipating difficult changes may constitute severe stress, even when those changes represent "desired" transitions such as leaving for college or getting promoted at work.

11. *Serious depression or mental disorders.* Depression is not used here to refer to a brief period of sadness. It is a mental disorder characterized by a serious and pervasive loss of pleasure and loss of interest in one's usual activities that lasts at least two weeks. Additional signs of depression include sadness, sleep disturbances, difficulty concentrating, excessive guilt ruminations, loss of energy, loss of appetite, or a marked change in weight. Since depression is usually a recurrent disorder, a past history of depression may indicate a persistent problem. A person may commit suicide when he or she appears to be recovering or getting more energy. Depression or another mental disorder need not have been diagnosed by a mental health professional. Signs of impairment by a mental disorder might include inability to care for oneself, inability to maintain relationships, or previous psychiatric hospitalization. Other mental disorders include manic state or manic-depressive illness, difficulty controlling impulses, psychoses, substance abuse disorders, and organic mental disorders. A person with a mental disorder may commit suicide in response to a perceived command that was part of a hallucination (for example, "My mother is calling me to join her in heaven"; "The space creatures told me that if I did not kill myself they would torture me.").

### Applications of These Criteria

These criteria are meant to aid decision makers in exercising their judgment, not to replace judgment with a mathematical formula for decision making. These criteria are intended as guidelines to promote accuracy, consistency, and uniformity in certifying and reporting suicide. They are also intended to make the decision making process more explicit, which can help decision makers minimize bias and resist family and community pressures to avoid calling a death a suicide.

The definition of suicide implicit in these criteria is "death arising from an act inflicted upon oneself with the intent to kill oneself." Thus, the two fundamental questions for the decision maker are (1) whether or not the injury was self-inflicted and (2) whether or not the decedent intended to kill himself or herself. The criteria are designed to allow separate and sequential determinations of a death as being self-inflicted and intentional.

Absolute certainty is not the goal in certifying deaths. With respect to suicide deaths in particular, no decision maker will ever be certain of the decedent's intent because the decedent is unavailable for questioning and because almost everyone who contemplates suicide has some degree of ambivalence [15]. Rather than absolute certainty, a "yes" or "no" decision is needed representing the decision maker's best judgment after collecting and reviewing all the evidence. These criteria can help decision makers specify the types of evidence that should be collected and used in the decision. The criteria specify, for example, that information about the decedent's past mental health, previous suicidal behavior, and recent communications with acquaintances should be collected and considered. Determining the manner of death will not result from applying a mathematical formula to the yes and no answers for various criteria. Instead, the basis for the decision should correspond to the legal notion of "the preponderance of the evidence"; otherwise stated, it is an opinion based on "reasonable probability." Obviously, certain types of evidence may be helpful in deciding between suicide and homicide, for example, and other types of evidence may be helpful for deciding between suicide and accident.

The relative importance of particular criteria may vary with the victim's age, sex, race, or socioeconomic status. Among young persons who commit suicide, for example, depression may be uncommon; among older persons, depression may be very common. Similarly, serious mental disorders may be expressed differently among young persons. Manic-depressive illness might be easily diagnosed in an adult who has had several episodes of depression and at least a single manic episode. In a young person with no history of full-blown manic or

depressive episodes, however, the diagnosis might be suggested only by a labile mood, impulsivity, family history of manic-depressive illness, and a positive response to treatment (lithium).

Since these criteria indicate the kinds of information that should be collected during the investigation of possible suicides, they should be available to the investigator before and during the investigation. Criteria could be printed on a pocket reference card that would be available to the investigator if he or she wishes to use it. They might also be printed on the investigation report form, but labeled "Guidelines." This would allow the decision making process to be reconstructed in difficult cases and would also document cases that are subsequently reviewed for legal or quality assurance purposes. The criteria could be incorporated into software packages now being developed to assist both in analyzing data and in preparing medical examiner reports [16]. The criteria could help in training personnel who investigate or certify possible suicides. Teaching a procedure that has been made explicit through criteria specification is easier than teaching an "intuitive" process. These criteria could also be used to analyze the quality of the death certification process, since case reviewers could identify both the amount and content of the information upon which the decision about manner of death had been made and the decision making process itself.

## Discussion

Accurate determination of true suicide deaths is essential in identifying high-risk groups and targeting preventive programs and interventions to those groups. Recognizing that specific subpopulations, such as white males or Native Americans, are at increased risk is an outgrowth of suicide reporting [17,18]. Although our presently imperfect suicide statistics are useful, the possibility of systematic and selective certification errors may undercut our ability to identify other potential groups at high risk for suicide [19]. For example, certifiers who discount suicide as a possible manner of death in younger children may skew reported suicide rates toward older age groups. We need more educational materials to highlight the differences between adult and child suicide.

Consistent and accurate suicide certification also allows us to follow trends. Among young persons today, firearms are the most frequently used method of suicide, whereas at the turn of the century hanging and poisoning were more common [20,21]. Such trend information is vital in assessing the potential and actual impact of prevention strategies. For example, lower suicide rates in Great Britain following the conversion of household fuel supplies from carbon-monoxide-containing coal gas to less lethal natural gas demonstrate the beneficial effects of changing the availability of one method of suicide [22].

Additionally, accurate determination of suicide deaths is important for understanding suicide risk factors and causes. Long-term outcomes of various disease processes and events have been determined through analyses of death certificates. For example, causes of mortality for persons with mental disorders such as schizophrenia, alcoholism, and depression have been identified by matching treatment records with death certificates [23-25]. From this type of study, epidemiologists can estimate the lifetime risk of suicide, the years of potential life lost to suicide, or the health care costs attributable to suicide for these disorders. The relative frequency of suicide is also being examined for persons with specific exposures, such as military service in Vietnam [26]. Adverse perinatal events also have been reviewed as risk factors for adolescent suicide in a study linking hospital records with death certificates [27]. The recently inaugurated National Death Index will allow large studies of this sort to be conducted.

Factors temporally associated with suicide have been identified from medical examiner data. Toxicology studies have documented how commonly suicidal persons consume alcohol just before death [28,29]. Other toxicologic studies have provided information on the specific



substances ingested in suicides by overdose and show the predominance of overdose suicides by antidepressant medications. This information may be important in preventing suicides by improving prescribing practices [30].

The death certificate or medical examiner's file may be a starting point for more in-depth studies that relate sociological and psychological characteristics to suicide. Information beyond that on a death certificate or in a medical examiner's file has been obtained through interviews termed "psychological autopsies." One such study of deaths classified as suicide highlighted the negative impact of the recent loss of a significant other on the decedent [31]. Although these studies require information sources beyond death certificates, their foundation is the identification of valid cases of suicide as determined by the certifier.

The operational criteria for the determination of suicide (OCDS) will improve suicide determination by standardizing the type of information collected and incorporated into determining the manner of death. The certifier is more likely to identify a suicide correctly when the case file contains objective information regarding intent to die. Certifying districts might develop checksheets for case files that could be used in all types of cases referred to the coroner or medical examiner (see Appendix for example). The checksheet would provide documentation either for or against the decedent's intent to die. Thus, the process for information collection becomes systematic. These data, when routinely collected, will form a practice standard for determining cause of death. The OCDS will allow more meaningful comparisons of vital statistics data among various geographic, age, racial, and socioeconomic groups. Such comparisons would more closely reflect actual differences in rates of occurrence, rather than different practices for determining mode of death.

We hope these criteria will be disseminated, used, and subsequently revised to incorporate the suggestions of medical examiners and coroners. We also hope to measure the validity, sensitivity, and specificity of these criteria and to revise them in light of these measurements. And we will look for ways to make them clearer, more practical, and more useful.

From its inception, the working group felt that the role of the Centers for Disease Control (CDC) and the National Center for Health Statistics (NCHS) was to catalyze the process of criteria development by helping to bring the relevant parties together; because the group did not want these criteria to be government guidelines imposed upon certifiers, the group did not seek official government endorsement. Because the primary users of these criteria are medical examiners and coroners, we presented the criteria to the International Association of Coroners and Medical Examiners. Their executive board approved the criteria in June 1987. Representatives of the National Association of Medical Examiners participated in every step of criteria development. These criteria were also presented to the American Association of Suicidology (AAS) membership—which includes psychiatrists, psychologists, and suicide prevention researchers and practitioners—several times during the course of their development. While the AAS does not endorse scientific research or findings, their board of directors in May 1987 officially recommended dissemination of these criteria.

Disseminating and successfully implementing the OCDS will depend on the initiative of relevant individuals and organizations such as those involved in developing the criteria. To assist in their dissemination, the working group is developing a training manual and conducting research to assess the validity and value of the criteria, and to assess such characteristics as intra- and inter-observer variability. Widespread adoption of these criteria could result in an apparent increase in reported rates of suicide. It will be important to understand the effect of these criteria in changing reported suicide rates so that future rates could still be compared to historical rates and so that the effect of any reporting artifacts could be estimated.

Suggestions or inquiries should be addressed to OCDS Working Group, c/o Division of Injury Epidemiology and Control, Center for Environmental Health and Injury Control, Centers for Disease Control, Atlanta, GA 30333.

### Acknowledgments

Many persons assisted the working group with the formulation of these criteria through their careful review and comment. In particular, we thank Norman L. Farberow, Ph.D., Robert E. Litman, M.D., Edwin S. Schneidman, Ph.D., and Robert L. Spitzer, M.D. We also thank Elizabeth Fitch, Joyce M. Hughes, and Donna C. Hiatt for their invaluable assistance to the working group and in the preparation of this manuscript. James A. Mercy, Ph.D., provided valuable comments on the manuscript.

## APPENDIX

### Example of a Questionnaire For Possible Use by Medical Examiners and Coroners

Fill in every column and row. Use the following codes:

- Y = yes, decedent showed positive evidence of intent to die
- N = no, decedent showed evidence contrary to intent to die
- 0 = there was no evidence relating to this category, or respondent did not know
- = respondent was not asked

Write in details for any Y or N codes.

Source of Information

Acquaint-

Family      ance      Other      Details

#### A. Explicit expression of decedent's intent to die:

##### 1. Verbal statement

##### 2. Handwritten suicide note, unambiguous

##### 3. Recorded statement, e.g., audio tape, word processor disk, typewritten note, video tape


#### B. Implicit or indirect evidence of decedent's intent to die:

##### 1. Expressions by the decedent of farewell, desire to die or acknowledgement of impending death

##### 2. Expressions by the decedent of hopelessness

##### 3. Expressions by the decedent of great emotional or physical pain or distress

##### 4. Expressions by the decedent that the decedent recognized high potential lethality of means of death

##### 5. Efforts or actions by the decedent to prepare for death, inappropriate to or unexpected in the context of his or her life


6. Efforts or actions by the decedent to procure or learn about means of death or rehearse fatal behavior				
7. Efforts or actions by the decedent or precautions to avoid rescue				
8. Decedent's history of previous suicide attempt				
9. Decedent's history of previous suicide threat				
10. Decedent's history of stressful events or significant losses (actual or threatened)				
11. Decedent's history of serious depression or mental disorder				

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