VIOLENCE AND SUICIDALITY

Perspectives in Clinical and Psychobiological Research

Edited by
Herman M. van Praag, M.D., Ph.D.
Robert Plutchik, Ph.D.
Alan Apter, M.D.

CLINICAL AND EXPERIMENTAL PSYCHIATRY

Monograph Series of the Department of Psychiatry
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A Note on the Series

Psychiatry is in a state of flux. The excitement springs in part from internal changes, such as the development and official acceptance (at least in the U.S.A.) of an operationalized, multiaxial classification system of behavioral disorders (the DSM-III), the increasing sophistication of methods to measure abnormal human behavior and the impressive expansion of biological and psychological treatment modalities. Exciting developments are also taking place in fields relating to psychiatry; in molecular (brain) biology, genetics, brain imaging, drug development, epidemiology, experimental psychology, to mention only a few striking examples.

More generally speaking, psychiatry is moving, still relatively slowly, but irresistibly, from a more philosophical, contemplative orientation, to that of an empirical science. From the fifties on, biological psychiatry has been a major catalyst of that process. It provided the mother discipline with a third cornerstone, i.e., neurobiology, the other two being psychology and medical sociology. In addition, it forced the profession in the direction of standardization of diagnoses and assessment of abnormal behavior. Biological psychiatry provided psychiatry not only with a new basic science and with new treatment modalities, but also with the tools, the methodology and the mentality to operate within the confines of an empirical science, the only framework in which a medical discipline can survive.

In other fields of psychiatry, too, one discerns a gradual trend towards scientification. Psychological treatment techniques are standardized and manuals developed to make these skills more easily transferrable. Methods registering treatment outcome—traditionally used in the behavioral/cognitive field—are now more and more requested and, hence, developed for dynamic forms of psychotherapy as well. Social and community psychia-

try, until the sixties more firmly rooted in humanitarian ideals and social awareness than in empirical studies, profited greatly from its liaison with the social sciences and the expansion of psychiatric epidemiology.

Let there be no misunderstanding. Empiricism does *not imply* that it is only the measurable that counts. Psychiatry would be mutilated if it would neglect that which is not yet capturable in numbers and probably never will be. It *does imply* that what is measurable should be measured. Progress in psychiatry is dependent on ideas and on experiment. Their linkage is inseparable.

This monograph series, published under the auspices of the Department of Psychiatry of the Albert Einstein College of Medicine/Montefiore Medical Center, is meant to keep track of important developments in our profession, to summarize what has been achieved in particular fields, and to bring together the viewpoints obtained from disparate vantage points—in short, to capture some of the excitement ongoing in modern psychiatry, both in its clinical and experimental dimensions. Our Department hosts the Series, but naturally welcomes contributions from others.

Brunner/Mazel is not only the publisher of this series, but it was Bernie Mazel who generated the idea—an ambitious plan which, however, we all feel is worthy of pursuit. The edifice of psychiatry is impressive, but still somewhat flawed in its foundations. May this Series contribute to consolidation of its infrastructure.

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Introduction

Violence and suicidality have always been major public health issues, but it is only fairly recently that they have become the focus of some major clinical and biological research efforts. This is due partly to a large increase in suicide and homicide rates in the young and partly to a realization that effective management of psychiatric patients cannot be based on categorical diagnosis alone, but requires an understanding of the patient's entire behavioral profile.

This volume attempts to describe some of the most important advances in the psychobiological understanding of the behavioral dimensions of suicide and violence that have been made over the last 10 years. It is comprised of papers presented at two symposia held under the auspices of the department of psychiatry of Albert Einstein College of Medicine that were devoted to the topics of violence and suicide. The first was held as part of the American College of Neuropsychopharmacology meeting in Washington, DC; the second, one of the Einstein Symposia, was held at the New York Academy of Sciences. Both were largely devoted to biological issues which have previously been somewhat neglected. However, some clinical and psychometric research was also presented in the belief that only collaboration among basic scientists, clinical psychobiologists, psychometricians and clinicians can bring about advances in this complex area.

In bringing together these papers, the monograph represents the state of the art in research dealing with both inwardly and outwardly directed aggression in a number of different fields. Perspectives that are represented are: the clinical; the ethological; the human neurochemical; the animal neurochemical and basic "bench lab" science.

CLINICAL ISSUES

The clinical section of the monograph consists of two papers. The first, by Feinstein, represents his research and experience as an emergency room psychiatrist, evaluating patients for imminent violence. The author first gives an idea of the complexity and magnitude of the problem. Violent behavior in clinical situations does not have a low base rate as does suicide, and in fact is rather common. He believes that in most psychiatric patients short-term predictions are quite possible if systematic guidelines for assessment are adhered to. These guidelines include evaluation of: violent ideation; behavior during the interview; recent history of violence; past history of violence; the presence or absence of a supportive social network; the ability of the patient to cooperate with treatment; substance abuse, and neurological and medical illnesses associated with violence. Some clinical illustrations of how these principles are used in practice are given.

The second paper in the clinical section, by Rachlin, also deals with assessment and management. The approach in this paper however, is from the point of view of psychiatric liability for patient violence. Rachlin notes that "since the law is not an empirical science, it can impose accountability even in the absence of our ability to predict or control what others do." Having said this, Rachlin then provides us with some basic information on which we can build rational approaches to the assessment of the violence potential of psychiatric patients so as to diminish the danger of litigation while improving patient care. This information includes an outline of some basic and relevant medicolegal concepts such as "special relationship" (between doctor and patient), "direct causation," and "foreseeability." There is a discussion of the controversial Tarasoff decision and its implications for the care of potentially dangerous patients, as well as some other legal decisions in this area.

ETHOLOGICAL ISSUES

The ethological section of the monograph begins with a chapter by Plutchik and van Praag which describes an evolutionary ap-

proach to violence and suicide. This hypothesis is based on the view that the same aggressive impulse underlies both suicidal and violent behavior. The literature review focuses on the frequency with which violence and suicide are associated with one another. Based on this literature and on a series of psychometric studies, Plutchik and van Praag have isolated groups of variables which act on the aggressive impulse to either attenuate or augment it. At a second stage, other groups of factors act to turn the aggression either inward (suicidal behavior) or outward (violent behavior). The eventual fate of the aggressive impulse is thus determined by the resultant of competing vectorial forces. Since the behavior evinced acts on the environmental stimulus, feedback mechanisms which influence natural selection are set up.

The next chapter in this section, by Robert Hinde, who received the 1987 Einstein Award for his outstanding contributions to the understanding of behavior, points the way to an integration of biological data with social science. Biological data is not only biochemistry and physiology but ethology as well. The author reviews the concept of agonistic behavior—the complex of aggressive behavior, threat, fleeing, and submission. He then tackles the thorny problem of the classification of human behavior, including aggression, giving examples of how this might be attempted. He describes his own work on preschool children and suggests an hypothesis to explain how biological development, determined by naturally selected genes, and child-rearing practices might interact to produce an aggressive person. He concludes with some ideas as to how we might better understand some social institutions, such as international war, in the light of these considerations.

The paper by Olivier et al. can be regarded as a particular example of Hinde's proposal that ethology has bearing on psychiatric research. Olivier has pioneered the concept of "ethopharmacology" wherein the influence of drugs on social behavior of animals and human is studied. In this article, the effect on aggression in rats of a new group of drugs called the "serenics" is discussed. Many psychotropic compounds will eventually cause a diminution of aggressive behavior, but the serenics have a specific action not involving effects on other behavioral systems such as motor activity, defensive capability,

social interest and exploration. Using ethological methodologies it becomes possible to measure several aspects of agonistic behavior together and to tease out differential effects of specific drugs.

The authors classify aggressive behaviors in animals using an ethological perspective. For instance, they divide aggression into offensive aggression and defensive aggression. Examples of offensive aggression include: isolation induced aggression; intermale aggression; territorial aggression; aggression induced by electrical stimulation of the hypothalamus; and maternal aggression aimed at protecting pups. Defensive aggression includes pain-induced aggression and resident-intruder aggression. Predatory aggression is placed into a separate category. They hypothesize that these different kinds of aggression are related to different biological mechanisms involving different types of serotonin receptors. Different serenics have different actions on each type of aggression, and this differential action on aggressive behaviors is somehow thought to be based on the in-vitro profiles of these serenic drugs.

CLINICAL NEUROCHEMICAL ISSUES

The section on clinical neurochemical and metabolic perspectives consists of three papers which attempt to review the relationship among biochemical, psychometric and clinical variables associated with suicidality and violence. The additional psychological variable of impulsivity is looked at in this and other sections, since there is a great deal of evidence that impulsivity is an integral part of both suicidal and violent behavior.

The contribution by Roy and Linnoila concentrates on suicide. They initially outline some of the important demographic and public health issues that make suicidal behavior such an important topic for psychiatric research. This is followed by a review of their own work as well as that of others on the role of the monoamines (serotonin, dopamine, and norepinephrine) in suicidality. They suggest that biological abnormalities such as dysregulations of monoamine metabolism may influence enduring

behavioral patterns by their effect on personality and thus may increase vulnerability to self-destructive behavior. After reviewing postmortem and genetic studies of suicide, they then discuss some peripheral endocrine markers. These are of particular importance, as these tests may be valuable in routine clinical assessments of suicidal patients. These tests include: urinary 17-hydroxycorticosteroids; hypercortisolemia; DST non-suppression; cortisol response to 5-hydroxytryptophan; thyroid-stimulating hormone response to thyroid-releasing hormone stimulation, and habituation of skin conductance responses. There is also a discussion of platelet markers such as serotonin uptake and 3(H) imipramine binding to platelet membranes.

The authors then go on to the subject of prediction of suicide, and this part of the paper will probably be of special interest to clinicians. Their feeling is that "most suicides are probably preventable." This statement is supported by an assessment of clinical, CSF and peripheral biological predictors of suicide that are potentially available to the clinician. They propose that these predictor variables may be of particular interest in three at-risk groups: patients with affective disorders, patients with a past history of suicidal behavior, and patients with a family history of suicide.

The second contribution in this section, by Brown, Linnoila and Goodwin, deals with the interface of clinical and biological data as they pertain to human aggression and impulsivity. As in the previous paper, the focus is on monoamine metabolism. The literature on human studies is first reviewed, followed by an attempt to delineate some different kinds of aggressive behavior in animals and man. Aggression in animals is divided into predatory aggression, affective aggression, and "other" aggression. The discussion on human aggression points out that most studies to date have addressed culturally defined "antisocial" behaviors and not aggression in its clinical context. State and trait aggression are also differentiated. The relationship between psychiatric conditions, both in adults and children, and violence is then discussed in detail, followed by a similar section on medical and neurological illnesses as they relate to aggression.

An important part of this paper is a critical assessment of the psychometrics of aggression, especially in the context of biolog-

ical research. The authors point out some of the difficulties associated with trying to measure aggression such as lack of cooperation and dissimulation by the patients and the need to control for contextual variables such as physical environment, diet and length of observations. Data from cross-sectional measures such as the Overt Aggression Scale may differ from historical, longitudinal measures such as the Brown-Goodwin Questionnaire. With the above material as contextual background, the authors then review their own and some other studies on human aggression and CSF neurotransmitter metabolites. This includes studies correlating MMPI, Buss-Durkee, and historical measures with monoamine CSF levels. The findings are detailed, as are the relative merits of the different psychometric measures.

The final paper in this section, by Linnoila, Virkunnen, Roy and Potter, deals with the issue of impulse control. They attempt to relate biochemical findings to some of the clinical manifestations of this basic psychological dimension. These include patients with personality disorders, violent offenders, arsonists, and alcoholics. As in the previous studies, much of the discussion is focused on monoamine neurotransmitter metabolites, although dysregulation of glucose metabolism is also discussed. The literature on animal and human studies is first reviewed, and the authors point out that there is a great deal of evidence to support the hypothesis that impulsivity is a discrete psychological dimension with an inherited biological basis. It is improbable that only one biological system would underlie such a trait and it seems that at the very least impulse control is determined by the interaction of the serotonergic and dopaminergic systems. Empirical evidence for such an hypothesis is described and a mathematical model representing this interaction is proposed.

ANIMAL NEUROCHEMICAL STUDIES

The section on animal studies and the biochemistry of aggression and impulsivity is composed of two articles. The work by Higley and his colleagues uses a developmental model to study

the parallel between aggression and serotonin metabolism. Monkeys and humans both show different levels of aggression at different stages of development. Thus a prepubertal child and an adolescent will not show the same aggressive patterns. In addition, the way a monkey or a child is reared will also affect his propensity for aggression. Both the above variables interact with sex to produce their effects on aggression. Their study on monkeys attempts to longitudinally follow CSF 5HIAA levels as development unfolds under different rearing conditions. The results indicate that reduced serotonin metabolism parallels changes in aggressive behavior.

The paper by Soubrie and Bizot is also directed to the biological underpinnings of impulsivity, an area which seems to be so important in the understanding of suicide and violence. The authors have designed some animal testing procedures which appear to simulate various aspects of impulse control such as waiting capacity and the tolerance for reward delay. They then tested the sensitivity of these dimensions to a variety of psychotropic drugs in order to gain insight into the neurochemical correlates of impulse control. They conclude that both serotonergic and noradrenergic systems are involved, most probably in an interactive way. Finally they describe a model which involves control of information processing and response emission that allows the organism to tolerate and/or arrange a delay before it acts.

BASIC NEURORECEPTOR FUNCTIONS

The section on neurotransmitter receptors concludes the monograph. This section is designed to bring the reader up to date on the two receptor systems that have been most associated with suicide and violence research, the serotonergic and the dopaminergic. The chapter on central serotonin receptors by Peroutka describes in detail some of the basic functional correlates of these receptors. The history of the classification of these receptors is reviewed. Radioligand binding studies initially differentiated between 5-HT1 and 5-HT2 receptors. Then 5-HT1 receptors were shown to be heterogeneous. 5-HT1a, 5-HT1b, 5-HT1c and

5-HT1d receptors were distinguished from one another. Finally 5-HT3 receptors were isolated. Each receptor binding site is labelled by different ligands and is concentrated in different areas of the brain. Different drugs have different affinities for the different receptors and each different receptor has different functional correlates. These differences are detailed and catalogued in the text and in tables and will be of great reference value to the reader trying to follow research into the biochemistry of suicide and aggression since the identification and characterization of these 5-HT receptor subtypes has, and will continue to have, multiple clinical applications.

The paper by Neff and Hadjiconstantinou describes the same parameters for central dopamine receptors. The D-1 and D-2 receptor types are distinguished and characterized. The relationship of these receptors to different neuropsychiatric conditions is described. Some of the basic neurophysiological functional activity associated with the two receptor subtypes is then detailed.

Goldstein's paper further examines some of the functional activities related to the dopamine receptor. Of especial interest for this volume is his discussion of a possible dopaminergic influence in self-biting behavior in monkeys and how this might relate to Lesch-Nyhan syndrome. This syndrome is of particular interest to investigators of suicide and violence as it is probably the best characterized neuropsychiatric illness involving self-destructive behavior in humans.

SUMMARY

The papers in this volume thus cover a wide range of questions connected with an understanding of suicide and violence. Clinical and legal issues are connected with experimental and clinical studies of suicidal or violent populations of humans. Studies of animals are also presented from both an ethological and a laboratory perspective. Basic biochemical and neuroanatomical studies are given to complete the picture. The overall presentation thus represents the state of the art concerning the understanding of the complex nature of suicide and violence.

PART I

Clinical Issues

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1

Clinical Guidelines for the Assessment of Imminent Violence

ROBERT E. FEINSTEIN

Almost daily, psychiatric clinicians must evaluate the imminent risk of violence posed by their patients. Their decisions are frequently guided by nonspecific impressions or intuitive clinical judgments. Many psychiatric professionals feel discouraged when making assessments about violence because of an overly pessimistic reading of early studies on violence prediction. These studies (Cohen et al., 1978; Kozol & Boucher, 1972; Monahan, 1982) suggest that there are no valid or reliable predictors of long-term violence. Long-term violence is defined as violence occurring within periods of years. While it may be true that we will never be able to predict the specific timing or nature of the violence, it seems likely that we can greatly improve our ability to make reliable probability estimates of the risk of imminent violence. Imminent violence is defined as violence that occurs within a three-week period after an initial evaluation. This paper will attempt to outline specific clinical guidelines which may improve our ability to make short-term probability estimates of imminent violence. A brief review of some of the relevant literature will be presented from which specific clinical guidelines will be derived. Three short clinical cases will then be presented to illustrate the use of these guidelines.

REVIEW OF THE LITERATURE

The combined wisdom of authors such as Cohen et al. (1978), Kozol and Boucher (1972), Monahan (1981, 1982) and Steadman et al. (1978) suggests that we are poorly equipped to make reliable long-term predictions about violence. A simplified summary is that these studies showed that approximately two-thirds of predictions of future violence were inaccurate. In other words, the prisoners, violent sex offenders, and psychiatric patients whom they predicted would again become violent did not do so in two-thirds of the cases. These early studies, however, may not be directly applicable to the probability estimates of imminent violence. As Monahan states in his classic work (1981, 1982), these studies were examining long-term predictions of the behavior of institutionalized clients after discharge. These studies did not assess the reliability of short-term probability estimates of imminent violence in a psychiatric population.

Pokorny (1983) pointed out that suicide predictions may be unsuccessful because suicides are rare events and, as such, cannot be easily predicted without creating false positives. This same logic has been applied to homicide and violence prediction. However, Skodal and Karasu's paper (1978) and extrapolation from Silver and Yudofsky's Overt Aggression Scale (1987) seems to contradict this common viewpoint. If violence is defined broadly to include homicide, physical assault, destruction of property, and verbal violence, then violence is not a rare event at all. Violence, broadly defined, is quite common in the psychiatric and general population.

Despite the continuing controversies about our ability to predict violence over the long term, there are other authors who are more optimistic about making probability estimates of imminent violence. These authors (Warner, 1961; Werner, 1983; Baxter, 1968; Bengelsdorf, 1984) have moved away from trying to predict the occurrence of a specific violent episode at a specific time. Instead, they have tried to find variables that will aid in assessing the probability of violence, broadly defined, over a short time span of days or weeks. Warner (1961) showed significant evidence that the ability to care for oneself, the presence of family supports, danger potential, and treatment prognosis were

reliable variables that correlate with the probability of imminent violence in psychiatric patients. Baxter et al. (1968) showed that the duration of the illness, previous psychiatric illness, the ability to communicate, and personal appearance may also be factors to help in our assessment of the short-term risk of violence. Monahan (1981, 1982) added past history of violence, family relations, and coexisting medical conditions to a growing list of relevant factors. Bengelsdorf et al. (1984) developed a "Crisis Triage Rating Scale" which was based on three factors: dangerousness (which was an assessment of suicide and violence potential); support systems; and the patient's ability to cooperate with treatment. These three factors were shown to be significant determinants of clinicians' decisions as to which patients needed to be committed to a hospital and which could be released and treated in the community. The work of Bleuler (1930), Fish (1967), and Yesavage (1983) suggests that a patient's ideation offers valuable clues as to the potential for imminent violence. Plutchik et al. (1985) proposed that poor impulse control, feelings of hostility, the triad of enuresis, firesetting and cruelty to animals in childhood, menstrual problems, young age, limited education, past history of violence, and repeated automobile infractions are variables which may help us in our short-term assessments of the potential for violence. Tinklenberg and Woodrow (1974) and Elliot (1987) added substance abuse to the list of relevant factors. Silver and Yudofsky (1987) remind us of the importance of neuropsychiatric disorders as risk factors for imminent violence. Finally, McNeil and Binder (1987) showed that emergency commitment did permit judgments of dangerousness with a high degree of short-term predictive reliability.

CLINICAL GUIDELINES IN ASSESSING THE RISK OF IMMINENT VIOLENCE

Based on the above literature review, it is possible to propose the use of eight broad variables to assist clinicians in making probability estimates of imminent violence. These variables can be used as a guide when making clinical decisions about short-

term violence potential. These variables are: (1) violent ideation; (2) behavior during the interview; (3) recent history of violence; (4) past history of violence; (5) support network; (6) cooperation with treatment; (7) substance abuse; and (8) neurological or medical illnesses associated with violence. It is unlikely that any single variable, by itself, will be significantly useful in making probability estimates of imminent violence. The literature suggests that the complex interactions of the constellation of these eight variables may be the most useful approach to the clinical assessment of the potential for violence in the immediate future. Clinical application and assessment of imminent violence using these variables will therefore be described.

Violent Ideation

The literature suggests that patients' violent thought or homicidal ideation can probably be put in a spectrum, from a higher to a lower probability of violence risk. The highest-risk thoughts on this continuum suggesting a high probability of imminent violence are those involving an intense desire to kill a specific person. Other work (Goodwin et al., 1971; Hellerstein et al., 1987) suggests that command hallucinations and/or delusions to hurt or kill are also the highest-risk ideation for imminent violence. A nonspecific wish to hurt or kill a member of a group (i.e., a wish to kill blacks or homosexuals) probably carries a slightly more modest risk for short-term violence potential. Ambivalent wishes to hurt others or damage objects, or nonspecific feelings of hostility, may carry lesser risks. Patients who have few thoughts of violence or homicide have the least risk of short-term violence potential.

Behavior During the Interview

My earlier work (Feinstein, 1986) suggests that there is a natural progression of behaviors that signal increasing risk of violence during the interview. Patients progress from a calm phase to an increase in psychomotor movements followed by an "early verbal phase" where they question authority. Increasing risk is signaled by a "late verbal phase" where patients may challenge

authority, use profanity, or display approach-avoidance behaviors which frequently lead to a violent assault. By observing these behaviors as patients progress through them, it is possible to anticipate the immediate risk of violence and take preventative measures.

Recent History of Violence

There may be a similar spectrum of recent events or recent behaviors which may correlate with the degree of imminent violence potential. Violence risk, from the highest to the lowest probability for potential violence, includes: (a) impulsive or deliberate assaultive behavior with weapons (e.g., assaults with a gun, knife, club, or bottle); (b) impulsive or deliberate physical assaults (e.g., beatings or an attempt at strangulation which have caused either fractures or the need for hospital assessment); (c) recent violence without serious sequellae (e.g., a slap, punch, or push); (d) other impulsive or unpredictable behaviors indicating a moderate risk potential for violence; (e) destruction of property or isolated objects, which may indicate a lower risk potential for violence; (f) no recent behavior associated with violence and clinical evidence that a patient's impulses are well regulated, indicating only minimal risk for imminent violence.

Past History of Violence

The past history of violence is still considered by many to be the best indicator of the probability of short-term risk for violence. A detailed history about a patient's past pattern of violence is essential for the assessment of imminent violence potential, as well as for planning interventions which may help prevent violence. Special attention should be paid to previous precipitants that initiated violence, the severity of past violence, the frequency of the violence, and the countervailing forces (Plutchik et al., 1985) which may inhibit or attenuate violence. Psychiatric patients who repeatedly become violent generally show repetitive patterns to their violence. As part of this assessment, clinicians should inquire about a patient's knowledge of weapons and their availability.

It is also useful to obtain a history of past arrests, automobile infractions, criminal records, or involvement in frequent legal proceedings. A childhood history of frequent disruptive changes in caretakers (Rockwell, 1972), frequent childhood abuse or punishment (Bryer et al., 1987), and the triad of enuresis, firesetting and cruelty to animals (Plutchik et al., 1985; Felthous et al., 1987) may also be associated with an increased potential for imminent violence. Also, adolescent histories of chronic problems with authority (as evidenced by truancy, running away, losing one's temper easily, sexual promiscuity, and overeating) (Plutchik et al., 1985) may also carry a greater risk in the short term for future violence.

There is little convincing evidence as to the relative significance of such past history regarding the probability of imminent violence potential.

Support Systems

Bengelsdorf et al. (1984), Schoenfeld (1986), Schnur et al. (1986) and new research (Feinstein et al., 1988) indicate that the social network or support system may be the main variable used by emergency psychiatric clinicians when determining which violent patients need commitment and which ones can be released. Support systems such as family, friends, mental health care providers, religious groups, etc. should be evaluated according to their interest, availability and competence. There is probably a spectrum of quality among support networks. A competent support system that is disinterested or unavailable will increase the likelihood of imminent violence. Similarly, an interested and available support system which is not competent (i.e. children) increases the likelihood for short-term violence potential. Patients who are discharged to support systems that demonstrate competence, interest and availability are at only slight risk for imminent violence.

Ability to Cooperate with Treatment

This variable is widely used by clinicians in deciding if a potentially violent patient can be released. The research of Feinstein,

Plutchik, and van Praag (1988) on 95 patients evaluated at the Bronx Municipal Hospital /Albert Einstein College of Medicine confirms the earlier work of Bengelsdorf (1984). It demonstrated a high correlation between a patient's ability to cooperate with treatment and clinicians' judgments about admitting a potentially violent patient. Patients who refused to cooperate with their treatment or who were unable to do so in the past were likely to be admitted. Patients who had weak motivation for treatment or who showed limited capacity to *participate* were less frequently admitted. Patients who actually sought treatment or who demonstrated a willingness or ability to participate in their treatment were more typically treated in outpatient settings.

Substance Abuse History

The literature correlating acute alcohol intoxication and an acute risk of imminent violence is extensive. The correlation between other forms of intoxication and an acute risk of violence is also well established. The correlation between substance abuse history and the potential for imminent violence is less clear, though likely (Tinklenberg & Woodrow, 1974, Elliot, 1987). The research of Feinstein et al. (1988) indicates that clinicians widely regard a substance abuse history as a guiding variable in their decision-making about the short-term potential for violence. However, these results showed that there was no relationship between substance abuse history and short-term violence when patients were also admitted to an inpatient service and followed over the next three weeks. This issue, however, remains unresolved for patients who have risk variables for imminent violence, a substance abuse history, and who are discharged into the community.

Because of this and with an extensive literature showing an association between violence and substance abuse, the wise clinician considers substance abuse a major factor when trying to assess the imminent risks of violence. Patients who are either intoxicated or who are in withdrawal have a very high risk for violence. Patients who are long-term substance abusers or compulsive users probably also have a significant risk for violence. The recreational user, or the intermittent user may have less

risk. The absence of a substance abuse history is reassuring to most experienced clinicians. It may also be true that there are different risks associated with different substances of abuse.

Neurological and Medical Histories

There is ample evidence in the literature that demonstrates a clearcut association between some neurological disorders and an increased risk for imminent violence. Silver and Yudofsky have done a recent review (1987). Neurological disorders that are associated with a risk of imminent violence potential include disorders involving damage to the frontal lobes or other deep brain structures. A partial list would include head trauma, cerebrovascular accidents, Alzheimer's Disease, multi-infarct dementia, mental retardation seizures or kindling, or organic personality disorders. If there is a high index of suspicion for imminent violence, patients should be assessed for behavioral, social, affective, and intellectual changes. Part of this assessment includes a detailed neurological exam looking for frontal release signs or other evidence of "soft" neurological signs. When indicated, detailed neuropsychological testing may be helpful. Further testing such as EEGs, CT scans, etc. should also be pursued vigorously if there are any clinical indications for a more extensive evaluation.

There are many medical causes for violence that may also require further evaluation. Certainly, any drug intoxication or signs of drug withdrawal must be carefully evaluated. Organic delirium and premenstrual syndrome in women (Plutchik et al., 1985; Dalton, 1979) are other disorders that probably have a higher risk for imminent violence. This is especially so in patients who have other risk variables as previously mentioned.

USE OF THE CLINICAL GUIDELINES: CLINICAL EXAMPLES

The following clinical illustrations attempt to show how these eight variables can serve as a guide to clinicians assessing the risk

of imminent violence. As there is still no consensus as to which of these eight variables are most important, clinicians must still exercise individual judgment on a case-by-case basis when deciding on an overall probability estimate of imminent violence potential.

Case I

Mr. B. was a 20-year-old Italian man, employed in the furniture-moving business, who referred himself to the psychiatric outpatient clinic after having a fistfight with his boss and assaulting a man in a candy store. The outpatient clinic referred this patient to the psychiatric emergency room to assess his violence potential.

Mr. B. had no previous psychiatric history or contacts. Over the past two years he had worked for a furniture-moving company. He had been fired and rehired at least three times over these two years. Each violent episode would begin when the patient felt he was harshly criticized in front of his coworkers. He would get into a verbal argument with his boss and follow this with a physical assault, typically involving several blows to his employer's face. He would be fired, but after two weeks he would be rehired because he is a "good worker." Three days prior to this visit, Mr. B. had again assaulted his employer under the same circumstances. Moreover, two days prior to his visit, Mr. B. had also assaulted a man in a candy store who was unknown to him. This assault was unprovoked and occurred after he had had two beers. While he held the man on the ground, he scraped the man's knuckles on the cement and began banging his head on the ground. The assault was halted by other customers. There was no police involvement, nor were there any charges filed against Mr. B.

During the interview, Mr. B. was calm and cooperative, and showed no behavioral signs of immediate violence risk. He denied violent ideation, had no clinical signs of psychosis except that he occasionally heard a solitary voice that would say "kill" during times when he was angry. He described no other auditory hallucinations, nor was this voice commanding him. He had no delusions. The patient had a past history that included

multiple physical assaults on men in positions of authority. He had no criminal record but as a child he was frequently beaten by his father and had a history of some truancy from school. He never used any weapons.

Mr. B. lived with his wife of two years and he never abused nor threatened her. It was his wife who referred him to psychiatry. She was three years older than the patient, and was eager, available, willing and interested in participating in the treatment of her husband's violence. Mr. B's father had died two years earlier around the same time of year as this most recent assault on his employer. His mother and siblings were alive and well, living in the area. Mr. B. was cooperative and eager for treatment, saying "This can't go on. . . . I just don't know how to stop myself." Mr. B. drank two beers a day, especially as a refreshment at work. He denied use of any other substances and any drinking other than beer. Neurologic assessment revealed no new behavioral, affective, nor cognitive changes. He did, however, show signs of left-right confusion, and some reading difficulties which were consistent with a mild learning disability. He had, however, completed high school.

Mr. B's risk for violence can be summarized as follows: He was expressive of mild-risk violent ideation, since he heard a solitary voice saying "kill" when he was angry. During the interview, he was calm and cooperative, though quite unaware of the seriousness of his assault on the man in the candy store. There was no acute risk of violence during the interview. He showed high risk regarding recent-event-behavior in his two impulsive assaults. He had a past history of severe assaults in specific situations. As a child, he had been physically assaulted by his father and also had been truant from school. He had an excellent support network (his wife), who was eager and competent in her assistance with his treatment. Mr. B. was cooperative with planning specific temporary interventions in order to prevent a recurrence, and he was eager to be in treatment. He had a mild alcohol abuse problem, but was willing to stop drinking entirely. He had some "soft" neurological signs consistent with a long-standing mild learning disability. In summary, his risk potential for violence over the next several weeks was assessed as mild to moderate.

Follow-up at three weeks revealed no recurrent violence. Mr. B. was attending brief treatment at the crisis intervention service. His EEG was pending, and a trial of Inderal was begun for the pharmacotherapy of this patient's violence.

Case II

Mr. C. was a 42-year-old white, unemployed male, living in a shelter. He was brought to the emergency room by police after he had brutally assaulted a shelter resident, believing that this resident was a homosexual who was trying to infect him with AIDS.

This patient was a very poor historian, but he did reveal that he had been in a state psychiatric hospital many times. He was last hospitalized two years ago for six months, and had received no follow-up treatment. A past history of violence could not be elicited. He had family members living "somewhere locally," although he did not know their address nor how they could be contacted. He lived mostly on the street, except on cold nights, when he would stay at a shelter. He had been living at his current shelter for two days. While living there, he became fearful that the man in the next bed was a homosexual with AIDS. The police were called, and when they discovered that he was speaking illogically, they brought him to the psychiatric emergency room. Mr. C. denied any drug use, although a shelter caseworker had seen him drunk on at least one occasion.

Mr. C. was evaluated three times for the risk of imminent violence. The first assessment of his presenting symptomatology can be summarized as follows: Mr. C. expressed high-risk violent ideation; he was psychotic, with delusions about AIDS and the destruction of the world by homosexuals; he had command hallucinations demanding that he "defend all heterosexuals"; he showed psychomotor agitation throughout the interview; he revealed high-risk recent-event-behaviors in his impulsive and unpredictable assault on a sleeping shelter resident; his past history of violence could not be determined; he had no support system, and was only minimally cooperative with his treatment; it is likely that he had an alcohol abuse problem; he had no medical or neurological findings. This initial assessment was of an ex-

tremely high risk of imminent violence. Because of this high risk and concern that he might develop an alcohol withdrawal syndrome, Mr. C. was held in the emergency room. Over the next three days he was treated with neuroleptics and observed for signs of withdrawal, which never materialized.

On the fourth day, a second risk-potential assessment was performed and the patient was released from the hospital. This decision was based on the report that his command hallucinations had disappeared and his delusions were less prominent, though persistent. He was pleasant, calm and cooperative with staff and other patients in the emergency room. There were no legal charges pending for the assault on the shelter resident. There was no additional information about any past history of violence. The staff discovered he had a caseworker at the shelter who could see him upon his return there. No family or friends could be located. Mr. C. agreed to take a neuroleptic and to arrange follow-up treatment at an outpatient clinic. He had no neurological or medical illness. His risk of imminent violence was assessed, at that time, as mild.

Three days after his release, Mr. C. was returned to the psychiatric emergency room by police. He again had brutally assaulted another man, believing he was trying to infect him with AIDS. The third violence assessment was identical to his initial presentation. However, prior to the patient's initial release from the emergency room, the clinicians had unfortunately been in error in their assessment of his violence potential. In retrospect, the second assessment revealed a moderate-to-high risk of violence potential. Mr. C., in fact, had demonstrated high-risk violent ideation, since his delusional system persisted, even though his command hallucinations had subsided. Behaviorally, he showed little risk of violence while in the emergency room setting, a much more structured environment than the shelter. His recent-event history was unchanged and high-risk. The inability to clarify any past history of violence should alert the prudent clinician to potential hidden risks. Significantly, he had a poor support system. The caseworker was interested and probably competent; however, nobody asked about this caseworker's availability. In fact, he only saw Mr. C. once for five minutes shortly after he returned to the shelter. While superficially coop-

erative with outpatient treatment plans, Mr. C. had a known past history of poor compliance. In addition, Mr. C. had abused alcohol on at least one occasion. The absence of an alcohol withdrawal syndrome in the emergency room indicates that he probably had a mild to moderate alcohol abuse problem. He had no medical or neurological factors associated with violence risk. Overall, his risk for imminent violence was moderately high. The second assault, in retrospect, confirmed this assertion, indicating that the patient, his second victim and the community might have been better served had he been committed to the hospital.

Case III

Ms. A. was a 65-year-old Black female who was brought to the emergency room after she struck her private male attendant at a nursing home.

Ms. A. had a 40-year history of manic-depressive illness, which had been well controlled on lithium. Over the course of her illness, she had been hospitalized four times, followed by complete remissions lasting years. She had no past history of violence prior to three years ago, when she began to show behavioral, affective and cognitive changes, including lewdness, poor social interactions and dyscontrol leading to assaults on her husband. This was initially diagnosed as a recurrent manic episode. However, when she also developed new difficulties with language, decreased arithmetic skills and poor logical skills, she was diagnosed as having Alzheimer's Disease. Ms. A. stayed at home with her husband on lithium and low doses of haldol. Approximately six months previously, she had slapped her husband while he was feeding her, and was thereafter placed in a nursing home. While in the home, she continued to have verbal outbursts and minor assaults, though able to function in many activities. During this most recent assault, she struck her attendant while he was helping her eat. He injured his knee and had a possible hairline jaw fracture.

Her initial assessment revealed that she had mild-risk violent ideation. She was hostile and verbally abusive toward men, whom she confused with her husband. She had no delusions or

hallucinations. Her behavior during the interview was assessed to be of the highest risk. She was demanding, swearing and minimally responsive to verbal intervention. This is the kind of verbal behavior signifying high violence risk. Her recent-event behavior indicated a high risk, since she had struck her attendant. Her past history of violence showed progressive worsening of violence risk. Her support system at the nursing home subsequent to the assault remained good, since the home was willing to continue to provide attendants (preferably female) as long as the hospital stabilized her condition.

The patient was mildly cooperative with her treatment in the emergency room. While hostile, she was willing to take required medication. She had no substance abuse problem. Medical evaluation revealed a mild organic delirium that was caused by a urinary tract infection. Lithium level was normal, and there were no signs of lithium toxicity.

Ms. A. was assessed as having a moderate to high risk for imminent violence potential. She was held in the emergency room for the next 24 hours. She was treated with IV fluids and oral antibiotics, and her delirium resolved. At this point, a second violence risk assessment revealed mild-risk violent ideation, in that she was angry at being in the emergency room, but was no longer hostile to males or her husband. Her behavior during the interview showed mild-risk psychomotor agitation. Her recent-event behavior was assessed as high. Her past history of violence was assessed as mild to moderate, with the likelihood of becoming severe as her Alzheimer's disease progressed. Her support system was very good, and the home was accepting her back. Ms. A. was cooperative with taking her medication, which could be continued in the home. She had no substance abuse risk. Her delirium, presumably precipitated by a urinary tract infection, had resolved significantly. Though her bipolar disorder was stable, her Alzheimer's Disease appeared to be worsening. However, after medical stabilization, her imminent violence risk was assessed as mild to moderate. She was released to the nursing home on antibiotics, lithium and an increased dose of haldol. One week later, the patient threw her breakfast on the floor, and a course of tegretol was begun to control her outbursts. Six weeks later, there were no further reports of any

violence. The patient was attending the nursing home activities and doing well.

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