

Suicide Among Incarcerated Veterans

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Both veterans and jail/prison inmates face an increased risk of suicide. The incarcerated veteran sits at the intersection of these two groups, yet little is known about this subpopulation, particularly its risk of suicide. A Pubmed/Medline/PsycINFO search anchored to incarcerated veteran suicide, veteran suicide, suicide in jails/prisons, and veterans incarcerated from 2000 to the present was performed. The currently available literature does not reveal the suicide risk of incarcerated veterans, nor does it enable meaningful estimates. However, striking similarities and overlapping characteristics link the data on veteran suicide, inmate suicide, and incarcerated veterans, suggesting that the veteran in jail or prison faces a level of suicide risk beyond that conferred by either veteran status or incarceration alone. There is a clear need for a better characterization of the incarcerated veteran population and the suicide rate faced by this group. Implications for clinical practice and future research are offered.

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Few outcomes represent a greater failure at reintegration into civilian life among our returning veterans than suicide. The problem has received considerable media attention, on television, in print, and on the Internet, thus increasing public awareness and concern for the problem.^{1,2} There is a vital need to identify veterans at greatest risk of this unfortunate outcome and for effective interventions to reduce risk. While suicide among veterans may represent a disturbing manifestation of failed reintegration into civilian life, incarceration is another outcome with unfortunate ramifications for the returning veteran and high costs to society. Various publications describe the forgotten warriors³ of various conflicts^{3,4} languishing in jails and prisons around our nation. Incarcerated veterans may represent a group particularly at high risk of suicide. No outcome is more

dissonant with the dignity and debt owed to veterans than incarceration in correctional facilities followed by suicide. While substantial research has focused on suicide risk among veterans in general and on suicide among inmates of jails and prisons, there remains a paucity of research literature on suicide among incarcerated veterans. The suicide rate and degree of excess risk faced by our incarcerated veterans remain essentially unknown. However, existing literature from these two areas points out that incarcerated veterans may face a level of suicide risk that exceeds that attributable to either veteran status or incarceration alone, suggesting a need to clarify the extent of the problem. The authors hypothesize that the incarcerated veteran population faces a level of suicide risk that exceeds that of the general veteran population and that of the overall incarcerated population, facing a combination of risk factors that potentially interact to increase lethality.

Method

The authors performed a review based on a Medline/Pubmed/PsycINFO literature search. The initial search was anchored to the terms “incarcerated veteran suicide.” Because of an inability to identify studies containing information on suicide rates among incarcerated veterans, additional searches

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were performed to identify data that might assist in estimating the level of suicide risk faced by the incarcerated veteran population. Medline/Pubmed/PsycINFO searches anchored to “veteran suicide,” “jail and prison suicide,” and “veteran incarceration” were performed. Regarding veteran suicide, studies describing suicide rates and characteristics among the general U.S. veteran population published since 2000 were selected for further review. Similarly, studies describing suicide rates and characteristics in jails and prisons published since 2000 were reviewed and were augmented with recent statistics generated by the U.S. Justice Department. Studies characterizing the incarcerated veteran population published since 2000 were reviewed and augmented with the most recent data offered by the U.S. Justice Department.

It is important to note that this review of the suicide literature was focused on rates of completed suicides and characteristics of persons completing suicide. Studies involving only suicide attempts or suicidal ideation were excluded. While these latter aspects of suicide remain important and are represented in the medical literature, the rates and characteristics of individuals who attempt suicide or experience suicidal ideation often differ from those of persons who have completed suicide, which is the intended focus of the present study.

Suicide Among Veterans in the General Population

Our veteran population faces a suicide rate that exceeds that of the general population (Table 1). Several studies suggest an increased risk of suicide among veterans seeking services from the Veterans Administration (VA).^{5,10,11} Thompson *et al.*⁵ performed a cause-of-death search of 1,075 veterans from VA case rolls who died in 1998 and then chart reviews to characterize those patients who had completed suicide. These authors reported substantially increased suicide rates among male veterans, between two and three times those of the general population. They attributed this excess of suicides to the high proportion of behavioral health patients within the VA system. Prior diagnoses represented among this group of patient suicides included depression (31.6%), psychotic disorder (15.8%), and substance abuse (15.8%). The authors noted a difference between elderly and nonelderly suicides: none of the former had any listed psychiatric diagnoses in their charts, and they were less likely to have engaged mental

Table 1 Suicide Among Veterans in the General Population

Thompson <i>et al.</i> ⁵	Suicide rate two to three times that of the general population. Depression, psychotic disorders, and substance abuse associated.
Price <i>et al.</i> ⁶	Major depression and drug dependence with largest effect on the timing of suicidality.
Zivin <i>et al.</i> ⁷	Male, white race, substance abuse associated. Younger veterans (age 18–44) have higher rates. Service connection is a protective factor.
Desai <i>et al.</i> ⁸	Higher rates in younger and older veterans. Bipolar disorder with highest rates. PTSD/anxiety disorders marginally protective. \$100 per capita increased spending approximate six percent reduction in suicide.
Kaplan <i>et al.</i> ⁹	Suicide rate approximately two times that of the general population. White race, ≥12 years’ education, activity limitations with greater risk.

health services, while over half of the nonelderly suicides carried a psychiatric diagnosis.

Price *et al.*⁶ looked at the role of post-traumatic stress disorder (PTSD) and drug dependence in suicidality among male Vietnam veterans. Price *et al.*⁶ suggest that the impact of psychiatric comorbidity is additive over time, placing patients with comorbid conditions in socially disadvantaged positions that result in feelings of hopelessness, ultimately culminating in suicidality. Of the 943 veterans in the Price *et al.* study,⁶ 9 died of suicide, with all but one of the victims being white, and all having voluntarily enlisted into military service. Of note, Lester¹² argued that suicides among Vietnam veterans are highly underreported, possibly due to mischaracterizations as accidents. Price *et al.*⁶ found that major depression, followed by drug dependence, has the largest effect on the timing of suicidality. They described a vicious cycle wherein drug dependence exacerbates PTSD and suicidality, and then PTSD and suicidality promote ongoing drug dependence, indicating a need to recognize and treat PTSD and substance abuse early in their courses. While Price *et al.*⁶ describe completed suicides in their database, they focus on non-fatal suicidality in their study, and the results thus may be less applicable to veterans who eventually complete suicide.

Zivin *et al.*⁷ used longitudinal, nationally representative data from the years 1999 to 2004 to determine suicide rates among depressed veterans, reporting on the clinical and demographic factors associated with suicide within this group. Zivin

*et al.*⁷ note the very high rate of depression among veterans—two to five times that of the general U.S. population¹³—and the typical association with suicide and depression and substance disorders, with individuals featuring comorbid mental health disorders being at the greatest risk.^{14,15} Of the 807,694 veterans included in the study, 1,683 (0.21%) died of suicide. Male gender and white race were more frequently associated with suicide. Younger veterans (age 18–44) were found to have higher rates than middle-aged and elderly patients. Substance abuse was associated with higher suicide rates, while PTSD was associated with lower rates. The reduced risk of suicide in patients with PTSD was unexpected and warrants further investigation. Rates of suicide were higher in the South and West relative to the Northeast or Central regions of the United States. Service connection (disability benefits related to military service yielding greater access to VA services and regular compensation payments) was noted to be a protective factor against suicide. The authors emphasize results supporting higher suicide rates in the setting of depression and substance abuse and the substantial suicide risk among young veterans in the context of a changing VA population with the influx of returning veterans of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF).^{16,17}

Desai *et al.*⁸ combined VA data with the National Death Index to determine suicide rates among VA mental health outpatients during a period of extensive bed closures and systemwide reorganization and to establish predictors of suicide. The authors describe the dramatic changes in mental health service delivery in the 1990s, particularly noting changes within the VA system,¹⁸ including the closure of nearly two-thirds of all inpatient mental health beds. They point out the deficient state of knowledge regarding suicide trends within the VA, even though it is the largest provider of mental health services in the country. A U-shaped association between age and suicide was observed, with higher rates among younger and older veterans. Among psychiatric diagnoses, bipolar disorder had the highest suicide rates, while PTSD and anxiety disorders were noted to be marginally protective. Money spent on outpatient mental health services was associated with reduced suicide rates, with every \$100 per capita increase being associated with a six percent reduction in suicide. Increased spending on inpatient services as a proportion of mental health budget also had a protective

effect. Conversely, bed closures and system changes did not appear to be significantly associated with suicide rates in this study. Rosenheck *et al.*¹⁹ looked at incarceration rates during a similar time period, and although they noted a substantial rate of incarceration among veterans, system changes did not seem to affect the incarceration rate. Notably, these two studies use VA data, and do not account for the substantial number of veterans who have never entered or have discontinued treatment with the VA. Since recent findings seem to emphasize heightened suicide rates among young veterans, and the nation is presently experiencing an influx of returning OEF and OIF veterans who may have failed to establish care at the VA since arriving home, such results may not reflect the true status of our present veteran population. In light of the relationships reported between mental health budgets and service connection to suicide, it does seem that timely access to quality care plays an important role in the mental health well-being of veterans.

Of course, not all veterans seek, receive, or qualify for VA benefits, and accurate assessment of veteran suicide rates requires accounting for veterans outside of the VA system as well. Kaplan *et al.*,⁹ utilizing data from the National Health Interview Survey for 1986 to 1994, compared suicide risk between veterans and the general population, and found that the former were nearly twice as likely to die of suicide (adjusted hazard ratio, 2.04; 95% confidence interval [CI], 1.10–3.80). These results are particularly noteworthy as they reflect the risk among the entire U.S. veteran population, whether or not they are in treatment in the VA system.

Suicide Among Inmates of Jails and Prisons

Numerous studies describe the increased rates of suicide that exist behind jail and prison walls, both domestically and internationally (Table 2). Shaw *et al.*²⁰ performed a two-year national clinic survey of self-inflicted deaths in English and Welch prisons. One hundred seventy-two suicides were identified, with an average rate of 133 per 100,000, in dramatic excess to the general population's risk of 9.4 per 100,000. Thirty-two percent of these suicides occurred within seven days of reception, and self-strangulation was the most common method used. Men exceeded woman by a ratio of 12:1. Eighteen percent of the suicides involved persons age 21 years or

Table 2 Suicide in Jails and Prisons

Shaw <i>et al.</i> ²⁰	Rate 133 per 100,000; 32% within first seven days; male/female ratio, 12:1; 18% age 21 or younger; 26% with violent crimes, 49% on remand; 72% with one or more psychiatric diagnoses. Drug dependence most frequent primary and secondary diagnosis.
Fazel <i>et al.</i> ²¹	Rate approximately five times that of the general population. Excess risk among male prisoners on rise.
Blaauw <i>et al.</i> ²²	Six characteristics useful in identifying potential victims: age 40+, homelessness, history of psychiatric care, drug abuse, prior incarceration, violent offense.
Matschnig <i>et al.</i> ²³	Increased suicide rates and rates on the rise. Pretrial with highest risk. Long-term sentences, single-cell use, mental illness, substance abuse, history of suicidality associated with increased risk.

younger. Twenty-six percent had been incarcerated for violent crimes, and 49 percent were on remand. Seventy-two percent of the suicide cases featured at least one psychiatric diagnosis, with drug dependence being the most frequent primary diagnosis, as well as the most frequent secondary diagnosis. Fazel *et al.*²¹ identified 1,312 suicides among English and Welch prisoners from 1978 to 2003. They reported a suicide rate nearly five times that of the general population, and that the excess risk of suicide among male prisoners appears to have increased over the past quarter century.

Blaauw *et al.*²² reviewed 19 previous studies in an effort to identify demographic, psychiatric, and criminal characteristics of those prisoners most at risk for suicide. Characteristics of 95 suicide victims in Dutch prisons were identified and then applied to 209 suicides in U.S. jails and 279 suicides in English and Welch prisons. Six characteristics were identified as being particularly useful in identifying potential suicide victims: age 40+, homelessness, history of psychiatric care, history of drug abuse, one prior incarceration, and a violent offense. Matschnig *et al.*²³ echoed previous findings, indicating suicide rates in correctional facilities significantly in excess of that of the general population. They also suggested that the problem is on the rise. Pretrial inmates are reported to face the highest risk. Long-term sentences, single-inmate cells, mental illness, substance abuse, and history of suicidality are all associated with increased suicide risk. Clearly, inmates of jails and prisons at home and abroad face considerable risk of suicide.

This problem, and its possible escalation in recent years, has been attributed to deinstitutionalization and the shift of care of persons with mental illness from psychiatric hospitals to correctional systems. As individuals with mental illness accumulate in jails and prisons, the suicide rates in those facilities will escalate.²⁴ Furthermore, incarceration is an inherently stressful situation,^{25,26} as is navigating the criminal justice system for pretrial inmates, and these factors represent likely substantial stressors that exacerbate mental illness and pre-existing suicide risk, particularly when combined with the relative paucity of mental health services existing in most correctional settings and the extreme demand for services within them.²⁷⁻²⁹

The Bureau of Justice Statistics released a special report on suicide and homicide in state prisons and local jails in August of 2005.³⁰ The report was based on data generated from the Deaths in Custody Reporting Program from 2000 to 2002, and indicated that despite progress in recent years, suicide remained a considerable problem within the U.S. correctional system. The 2002 suicide rate in jails was 47 per 100,000, and in prisons it was approximately 14 per 100,000. Sex was identified as a strong factor, with males being 56 percent more likely to commit suicide in jails. Race was also an important factor, with white jail inmates being nearly six times more likely to die of suicide than black jail inmates, and nearly three times more likely than Hispanic jail inmates. Violent offenders in jail were found to face a suicide rate nearly three times that of nonviolent offenders, and violent offenders in prison were more than twice as likely to die by suicide. In jails, 48 percent of all suicides occurred within the first two weeks of admission, with 14 percent occurring on the day of intake and an additional 9 percent on the day following admission. Thus, inmates carrying risk factors of suicide should be more closely monitored during the first two weeks of their transition into the jail environment.

Incarcerated Veterans

A significant proportion of the veteran population has faced incarceration in jails and prisons. Several researchers have made efforts to characterize this population and have argued for expanded services to meet the particular needs of veterans behind bars (Table 3). Rosenheck *et al.*¹⁹ examined the effect of bed closures within the VA health care system on the

Table 3 Incarcerated Veterans

Rosenheck <i>et al.</i> ¹⁹	15.7% of male VA mental health patients incarcerated at some point between 1994 and 1997; 39.6% of those age 18–39 years. Incarceration rates highest with young age, substance use, and mental health disorders.
Saxon <i>et al.</i> ³¹	Of incarcerated veterans, 87% reported at least one lifetime traumatic event, and 39% screened positive for PTSD. Unemployment and homelessness frequently preceded incarceration. Substantial drug and alcohol use noted.
McGuire <i>et al.</i> ³²	Of the incarcerated veterans, 21% had long-term homelessness, 73% were unemployed. Current drug and alcohol abuse affected 37% and 50%. Psychiatric illness was present in 35%, 23% with dual diagnosis, 15% with mood disorders, 7% with schizophrenia, 6% with PTSD.

incarceration rate of veterans. System changes did not seem to affect the incarceration rate. However, 15.7 percent of all male users of VA mental health services had been incarcerated at some point between 1994 and 1997. The proportion was substantially higher among those veterans between ages 18 and 39 years (39.6 percent). The authors reported that substantial proportions of VA mental health users had been incarcerated, particularly those who were young and those with substance use and mental health disorders.

Saxon *et al.*³¹ examined exposure to trauma, symptoms of PTSD, functional status, and treatment history among a population of incarcerated veterans. In so doing, they described several important characteristics of this group. Eighty-seven percent of the veterans reported at least one lifetime traumatic event, and 39 percent screened positive for PTSD. Before incarceration, only 47 percent of the group held regular employment, and 22 percent reported experiencing homelessness in the preceding 3 years. Substantial drug and alcohol use was noted in veterans screening positive and negative for PTSD. Among those screening negative, mean dollars spent on drugs and alcohol in the 30 days preceding incarceration was \$277.21 and \$111.86, respectively. For those screening positive, the corresponding costs were \$846.86 and \$168.45. A wide variety of psychological traumas were reported in both groups. Among those screening positive for PTSD, 70 percent reported witnessing death or injury, 56 percent reported being physically assaulted, 34 percent had experienced physical abuse as a child, 32 percent re-

ported neglect as a child, 28 percent reported combat, and 16 percent reported being raped or sexually molested.

McGuire *et al.*³² compared the characteristics of veterans contacted while incarcerated in a Los Angeles jail with those of homeless veterans contacted in the community setting. Twenty-one percent of veterans contacted in jail reported long-term homelessness (more than six months), and 73 percent were unemployed. Current drug and alcohol abuse were endorsed by 37 and 50 percent, respectively. Psychiatric illness, as assessed by a counselor, was reported in 35 percent of the jailed veterans, with 23 percent having a dual diagnosis. Fifteen percent had mood disorders, seven percent had schizophrenia, and six percent had PTSD. Of note, emerging data indicate that military deployment to war zones, even without combat exposure, carried substantial mental health effects, with associated psychiatric disorders (mood and anxiety), substance abuse, and family conflict.^{33,34} Stress in war zones extends beyond that instilled by combat and includes exposure to isolation, poor living conditions, sexual trauma, family separation, and exposure to environmental hazards.³³ Even absent combat exposure resulting in PTSD, substance abuse, psychiatric symptoms, traumatic life events, and homelessness remain significant risk factors among incarcerated veterans.

The Bureau of Justice Statistics published its special report on veterans in state and federal prison in May 2007.³⁵ The report is based on personal interviews with inmates conducted with the Survey of Inmates in State and Federal Correctional Facilities in 2004. Compared with nonveterans in 2004, male veterans were less than half as likely to be in prison, but this finding appears to be largely explained by age. When age controlled, the rates become very similar, only 10 percent lower for veteran men. Of note, the report was conducted in 2004, and only five percent of veterans in state or federal prison at that time had served during the Afghanistan and Iraq wars. Given the emerging difficulties among veterans of these conflicts,^{16,17,36} and the fact that a survey conducted in 2004 allowed little time to reflect trends emerging with OEF/OIF and this latest generation of veterans, it is not unreasonable to hypothesize that the gap in incarceration rates between veterans and nonveterans is closing, perhaps even reversing.^{37,38}

Combat experience does not necessarily explain the frequency of incarceration among veterans. In

2004, only 54 percent of incarcerated veterans in state prisons had served during wartime, and only 20 percent reported experiencing combat duty. Several interesting characteristics that distinguish veterans from the general prison population emerged. Half of veterans in state prison were white, compared with only a third of nonveteran prisoners. Veterans were, on average, 12 years older than nonveterans, and they tended to be much better educated, with 91 percent reporting at least a high school diploma or GED. The college attendance rate among veterans was triple that of the nonveteran prison population. Veterans were considerably more likely to be imprisoned for violent crimes. Fifty-seven percent of veterans in state prisons were serving for violent crimes, 15 percent for homicide, and 23 percent for rape or sexual assault. Among nonveterans in state prison, 47 percent were serving for violent crimes, 12 percent for homicide, and 12 percent for rape or sexual assault. Veterans were more likely to be violent offenders, and the targets of their violent offenses were more likely to be female, minors, or known by the offender. Among veterans, 60 percent of victims were female, 40 percent were minors, and 71 percent knew their victims. Among nonveterans, the corresponding rates are 41 percent, 24 percent, and 54 percent, respectively.³⁵ These statistics are offered to point out that there is something unique about this subpopulation that requires further investigation. Why is a group that is generally older and better educated more likely to be incarcerated for these sorts of offenses? Assault directed at familiar victims, especially women and children, may suggest impulsivity, perhaps related to diagnoses such as PTSD, traumatic brain injury (TBI), and substance abuse. And impulsivity, if it partially explains the statistics surrounding incarcerated veterans, is also a risk factor for suicide.

Inferring Suicide Risk Among Incarcerated Veterans

Perhaps the most striking result of the present analysis is the lack of data available on suicide rates among incarcerated veterans. Based on the above findings, offering a meaningful estimation of suicide rate for this group remains impossible, and the authors' hypothesis that incarcerated veterans face a high suicide risk can, at present, be neither confirmed nor safely rejected. What clearly emerges is that incarcerated veterans are at the intersection be-

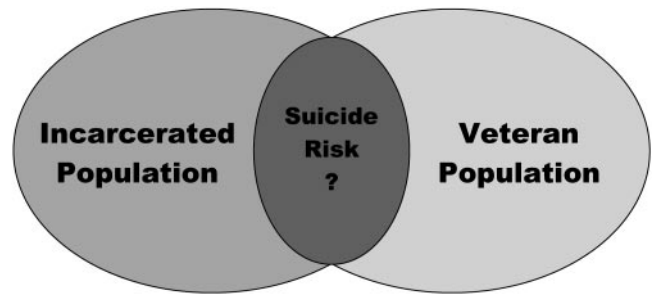


Figure 1. Incarcerated veterans are at the intersection of two populations with elevated suicide rates. The risk incurred by this status remains unknown.

tween two populations with well-established elevations in suicide rate. The true suicide rate among incarcerated veterans is still unknown (Fig. 1). Defining the scope of this problem should be an obvious priority.

Despite the missing information on suicide among incarcerated veterans, by applying the available data from the intersecting populations and making some reasonable inferences, potentially disturbing hypotheses are generated. Given the present conflicts in the Middle East, the growing number of returning veterans from those conflicts, and the difficulties some in this group are experiencing in readjusting to civilian life, the population of incarcerated veterans may be growing. Hoge *et al.*^{16,17,36} described a substantial degree of psychopathology among veterans returning from Iraq and Afghanistan, and the barriers to adequate care. Milliken *et al.*³⁹ reported that a substantial proportion of returning veterans with mental health needs are missed in initial screening, calling for re-evaluation several months after returning from deployment. If it is true that elevated suicide rates in correctional settings reflect the shift of psychiatric care from hospitals and clinics to jails and prisons,^{24,40} and returning veterans are unable to access treatment for mental illness effectively^{16,41,42} or are missed on initial screening,³⁹ then some veterans may end up in jails and prisons and potentially face the elevated suicide risk that may be associated with that status. In addition, many veterans prefer not to register for care at the VA, and mental health treatment remains highly stigmatized.⁴³⁻⁴⁵

Demographically, there are striking similarities between the population of incarcerated veterans and those most likely to commit suicide while incarcerated. Both groups are disproportionately represented

by white males, both are heavily represented by violent offenders, and both feature high rates of mental illness and substance abuse. Blaauw *et al.*²² identified age 40 or over, homelessness, history of psychiatric care, history of drug abuse, one prior incarceration, and violent offense as being associated with suicide among those incarcerated. These are features commonly shared by veterans in jails and prisons. The prevalence of violent crimes among veterans is unfortunate, as is the higher proportion of assaults directed at women, children, and familiar persons by incarcerated veterans. The neuropsychiatric causes of this phenomenon require research to define the problem further. The tendency to attack familiar victims may reflect the neuropsychiatric quality of impulsivity and certainly suggests hostility. Significantly, impulsivity and hostility have been associated with suicide risk,^{46,47} particularly in the setting of PTSD.⁴⁸ In addition, traumatic life events have been associated with suicide risk among jail inmates.⁴⁹ Given the frequency with which veterans are incarcerated for seemingly impulsive and violent crimes and the frequency with which they are involved in traumatic events, not to mention the already heightened suicide risk attributable to veteran status in the general population, the incarcerated veteran population may face a high risk of suicide.

Little is also known about the frequency of TBI among incarcerated veterans; this may contribute to the unique qualities of this subpopulation of veterans as well, adding to disturbances in cognition, emotion, and behavior (impulsivity). Of note, forensic psychiatric populations feature relatively high rates of TBI,⁵⁰ and survivors of TBI appear to face a heightened risk of suicide,⁵¹ which raises the disturbing possibility that there is a population of veterans incarcerated for crimes related to the cognitive and behavioral sequelae of TBIs sustained during military service and facing elevated suicide risk related to the very same service-related injury.

The extent to which the suicide risk attributable to veteran status combines with the risk associated with incarceration in an additive or aggravating fashion remains unclear, but there is almost certainly an overlap in the variance of suicide risk associated with each. Still, it seems likely that a component of dangerous interactions are at play, with the stress related to incarceration potentially inflaming the conditions that place veterans in the general population at an already increased risk of suicide. As such, incarcer-

ated veterans may represent a population to target if the problem of veteran suicide is to be optimally addressed.

Other potential targets for intervention involve the multiple periods of transition faced by our returning veterans. As individuals move from one system to another, treatment lapses often occur, and critical information may fail to move along with the patient. Integration across services and systems has been identified as crucial in repairing the nation's mental health system.²⁹ This need seems particularly evident in the returning veteran, who moves from the active military to the VA or other community-based health care systems and then potentially on to jail and then prison. Clearly, sealing the treatment and information gaps between these entities will benefit our veterans and patients. Binswanger *et al.*⁵² powerfully demonstrated the potential consequences of unaided transition from prison to the community, with released inmates facing death rates over 12 times that of the general populations in the first two weeks following release. Leading causes of death included suicide, homicide, and overdose. How veterans in this study group fared remains unknown but is an ongoing focus of inquiry. Similar problems surround the transition from inpatient psychiatric units to the community, with the immediate postdischarge period being a time of heightened suicide risk.⁵³⁻⁵⁹

The VA is the nation's largest mental health provider, and a portion of its patients face incarceration. The need to partner with correctional systems to seal gaps, exchange information, and facilitate transitions is clear. Similarly, the transition between the active military and the VA or other community-based mental health resources should be targeted for better coordination. Given the frequency with which VA patients and returning soldiers face difficult transitions and the problems that seem to emerge during such periods of change, the transition seems to be a worthwhile target for aggressive intervention. One such intervention is known as Critical Time Intervention (CTI), which consists of a nine-month, three-stage intervention that strategically develops individualized linkages in the community and seeks to enhance engagement with treatment and community support through building problem-solving skills, motivational coaching, and advocacy with community agencies. CTI is empirically supported and appears to enhance continuity of care for people with mental illness after discharge from homeless shelters and psy-

chiatric hospitals.^{60–63} Soldiers returning home, as well as veterans discharged from psychiatric units or correction facilities, may benefit substantially from such programs.

Implications

The inferences drawn herein are based on results compiled from various databases and studies of very different populations. Certainly, this method has major limitations, and the extent of the problem remains ill defined. There is a critical need to establish a better estimate of the suicide risk faced by incarcerated veterans. Enhanced efforts are needed to identify and characterize our incarcerated veteran population. Reports by the Justice Department represent massive undertakings and present a tremendous volume of important data. However, future reports would benefit from including veteran status for all subjects. Similarly, jails and prisons ought to include veteran status as a part of intake screening. Clinicians treating veterans in the community or inmates in correctional facilities should routinely inquire about veteran status, suicide risk factors, and incarceration histories, as these may provide important insights into the individual's psychiatric history and risk profile. Legal histories, particularly those involving violence, should be documented to the greatest extent possible.

As discussed, the incarcerated veteran population features some unique characteristics, many of which are liable to be predicated on distinct neuropsychiatric factors. Little is known about the rates of TBI among incarcerated veterans, including the emotional, cognitive, and behavioral consequences of such injuries, and what, if any, relationship exists between such injuries and the veterans' criminal behaviors. Similar worthwhile inquiries might also surround PTSD and various other cognitive deficits and mental health impairments associated with deployment.

The findings of Vasterling *et al.*³⁴ of neuropsychological compromise following deployment to Iraq is particularly striking in this regard. Iraq deployment, compared with nondeployment, was associated with neuropsychological compromise on tasks of sustained attention, verbal learning, and visual-spatial memory, and was also associated with increased negative state affect on measures of confusion and tension. In addition, deployment was associated with improved simple reaction time. Deployment effects

remained statistically significant even after accounting for deployment-related head injuries, stress, and depression symptoms. Although Hoge³⁶ offered a different interpretation of the data and found no objective evidence of cognitive deficits from deployment alone, it remains conceivable that simply serving in a war zone may result in a mixture of cognitive deficits and reactivity that enhances the likelihood of aggressive behavior, whether this be directed inward (suicide) or outward (assault). The need for better definition of the neuropsychiatric status of our returning veterans in the general population is apparent, along with the need to identify and address the factors contributing to either suicide or incarceration.

Certainly, ongoing efforts to study and comprehend suicide in general are needed. The paucity of data described in this report does not truly reflect the level of attention and commitment being paid to this problem. The VA is actively researching suicide and has facilities dedicated to this purpose. However, many challenges surround study in this field and limit the speed and manner in which results can be generated. While suicide has captured tremendous public attention, it still remains a relatively uncommon occurrence. Studies must run for considerable periods and numerous subjects must be observed to develop statistically meaningful results. Furthermore, suicide, the multiple associated neuropsychiatric conditions, and the interventions that target these problems do not lend themselves to simple study design. Ethics-related considerations challenge treatment and research in the area, as individuals at risk command attention and aggressive clinical intervention, and may not be relegated to observation or less-than-optimal treatment arms in studies.

Research focusing on incarcerated populations is also not without its particular challenges, as prisoners are rightfully regarded as a special group in need of extra protection by institutional review boards. At the same time, many urgent mental health problems (violence, substance abuse, and suicide, to name a few) are overrepresented in jails and prisons, and results from research in correctional settings could benefit inmates as a population. Compelling reasons to forge ahead with such research lie in the potential for developing treatments and interventions that benefit both these patients and society. Fostering the understanding that these persons are worthy of study, frequently value research, and respond positively to the experience of being a part of something valu-

able, should help to sustain and encourage research, with appropriate safeguards, within correctional settings.^{64,65}

Our returning veterans endure a constellation of neuropsychiatric factors that increases the risk of suicide, factors that may interact dangerously with and be exacerbated by those associated with incarceration. Defining the extent of suicide within incarcerated veterans can help us appropriately allocate resources. And only by more precisely understanding the underlying causes may we identify the best targets for intervention. Suicide among veterans is a national problem. That many veterans return home and eventually are incarcerated is an unacceptable result of failed reintegration into civilian life, with significant costs to society in terms of human suffering and finances. When these two unfortunate outcomes converge, resulting in the suicide death of an incarcerated veteran, the most reprehensible of endpoints is realized. The debt and respect owed to our veterans demand immediate attention to this problem.

References

1. Veteran suicides: how we got the numbers. CBS News. December 4, 2007. Available at http://www.cbsnews.com/stories/2007/11/13/cbsnews_investigates/main3498625.shtml. Accessed on February 19, 2008
2. Suicide epidemic among veterans. CBS News. November 13, 2007. Available at http://www.cbsnews.com/stories/2007/11/13/cbsnews_investigates/main3496471.shtml. Accessed on February 19, 2008
3. Boivin MJ: Forgotten warriors: an evaluation of the emotional well-being of presently incarcerated Vietnam veterans. *Genet Soc Gen Psychol Monogr* 113:109–25, 1987
4. Black DW, Carney CP, Peloso PM, *et al*: Incarceration and veterans of the first Gulf War. *Mil Med* 170:612–8, 2005
5. Thompson R, Kane VR, Sayers SL, *et al*: An assessment of suicide in an urban VA Medical Center. *Psychiatry* 65:327–37, 2002
6. Price RK, Risk NK, Haden AH, *et al*: Post-traumatic stress disorder, drug dependence, and suicidality among male Vietnam veterans with a history of heavy drug use. *Drug Alcohol Depend* 76(suppl):S31–43, 2004
7. Zivin K, Kim HM, McCarthy JF, *et al*: Suicide mortality among individuals receiving treatment for depression in the Veterans Affairs health system: associations with patient and treatment setting characteristics. *Am J Public Health* 97:2193–8, 2007
8. Desai MM, Rosenheck RA, Desai RA: Time trends and predictors of suicide among mental health outpatients in the Department of Veterans Affairs. *J Behav Health Serv Res* 35:115–24, 2007
9. Kaplan MS, Huguot N, McFarland BH, *et al*: Suicide among male veterans: a prospective population-based study. *J Epidemiol Community Health* 61:619–24, 2007
10. Bullman TA, Kang HK: The risk of suicide among wounded Vietnam veterans. *Am J Public Health* 86:662–7, 1996
11. Lambert MT, Fowler DR: Suicide risk factors among veterans: risk management in the changing culture of the Department of Veterans Affairs. *J Ment Health Adm* 24:350–8, 1997
12. Lester D: Suicide in Vietnam veterans: the suicide wall. *Arch Suicide Res* 9:385–7, 2005
13. Hankin CS, Spiro A III, Miller DR, *et al*: Mental disorders and mental health treatment among U.S. Department of Veterans Affairs outpatients: the Veterans Health Study. *Am J Psychiatry* 156:1924–30, 1999
14. Lehmann L, McCormick RA, McCracken L: Suicidal behavior among patients in the VA health care system. *Psychiatr Serv* 46:1069–71, 1995
15. Waller SJ, Lyons JS, Costantini-Ferrando MF: Impact of comorbid affective and alcohol use disorders on suicidal ideation and attempts. *J Clin Psychol* 55:585–95, 1999
16. Hoge CW, Castro CA, Messer SC, *et al*: Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *N Engl J Med* 351:13–22, 2004
17. Hoge CW, Auchterlonie JL, Milliken CS: Mental health problems, use of mental health services, and attrition from military service after returning from deployment to Iraq or Afghanistan. *JAMA* 295:1023–32, 2006
18. Rosenheck R, Horvath T: The impact of VA reorganization on patterns of mental health care. *Psychiatr Serv* 49:53, 1998
19. Rosenheck RA, Banks S, Pandiani J, *et al*: Bed closures and incarceration rates among users of Veterans Affairs mental health services. *Psychiatr Serv* 51:1282–7, 2000
20. Shaw J, Baker D, Hunt IM, *et al*: Suicide by prisoners: national clinical survey. *Br J Psychiatry* 184:263–7, 2004
21. Fazel S, Benning R, Danesh J: Suicides in male prisoners in England and Wales, 1978–2003. *Lancet* 366:1301–2, 2005
22. Blaauw E, Kerkhof AJ, Hayes LM: Demographic, criminal, and psychiatric factors related to inmate suicide. *Suicide Life Threat Behav* 35:63–75, 2005
23. Matschnig T, Fruhwald S, Frottier P: Suicide behind bars: an international review (in German). *Psychiatr Prax* 33:6–13, 2006
24. Fruhwald S, Frottier P: Suicide in prison. *Lancet* 366:1242–4, 2005
25. Brown SL, Ireland CA: Coping style and distress in newly incarcerated male adolescents. *J Adolesc Health* 38:656–61, 2006
26. Fogel CI: Hard time: the stressful nature of incarceration for women. *Issues Ment Health Nurs* 14:367–77, 1993
27. Kinsler PJ, Saxman A: Traumatized offenders: don't look now, but your jail's also your mental health center. *J Trauma Dissoc* 8:81–95, 2007
28. Lamb HR, Weinberger LE, Marsh JS, *et al*: Treatment prospects for persons with severe mental illness in an urban county jail. *Psychiatr Serv* 58:782–6, 2007
29. Wortzel H, Binswanger IA, Martinez R, *et al*: Crisis in the treatment of incompetence to proceed to trial: harbinger of a systemic illness. *J Am Acad Psychiatry Law* 35:357–63, 2007
30. Mumola CJ: Suicide and homicide in state prisons and local jails. Washington, DC: U.S. Department of Justice. Bureau of Justice Statistics Special Report, 2005. Available at <http://www.ojp.usdoj.gov/bjs/abstract/shsplj.htm>. Accessed on February 19, 2008
31. Saxon AJ, Davis TM, Sloan KL, *et al*: Trauma, symptoms of posttraumatic stress disorder, and associated problems among incarcerated veterans. *Psychiatr Serv* 52:959–64, 2001
32. McGuire J, Rosenheck RA, KasproW WJ: Health status, service use, and costs among veterans receiving outreach services in jail or community settings. *Psychiatr Serv* 54:201–7, 2003
33. Levin A: Mental disorders increase for many who serve in war zones. *Psychiatr News* 43:4a, 2008
34. Vasterling JJ, Proctor SP, Amoroso P, *et al*: Neuropsychological outcomes of army personnel following deployment to the Iraq war. *JAMA* 296:519–29, 2006
35. Noonan ME: Veterans in state and federal prison, 2004. Washington, DC: U.S. Department of Justice, Bureau of Justice Statis-

- tics Special Report, 2007. Available at <http://www.ojp.usdoj.gov/bjs/abstract/vsfp04.htm>. Accessed on February 17, 2008
36. Hoge CW: Deployment to the Iraq war and neuropsychological sequelae. *JAMA* 296:2678–9, 2006
 37. Sontag D: An Iraq veteran's descent: a prosecutors choice. *New York Times*. January 20, 2008, p 1
 38. Sontag D, Alvarez L: War torn: across America, deadly echoes of foreign battles. *New York Times*. January 13, 2008, p1
 39. Milliken CS, Auchterlonie JL, Hoge CW: Longitudinal assessment of mental health problems among active and reserve component soldiers returning from the Iraq war. *JAMA* 298:2141–8, 2007
 40. Lamb HR, Weinberger LE: The shift of psychiatric inpatient care from hospitals to jails and prisons. *J Am Acad Psychiatry Law* 33:529–34, 2005
 41. Himmelstein DU, Lasser KE, McCormick D, et al: Lack of health coverage among US veterans from 1987 to 2004. *Am J Public Health* 97:2199–203, 2007
 42. Woolhandler S, Himmelstein DU, Distajo R, et al: America's neglected veterans: 1.7 million who served have no health coverage. *Int J Health Serv* 35:313–23, 2005
 43. Langston V, Gould M, Greenberg N: Culture: what is its effect on stress in the military? *Mil Med* 172:931–5, 2007
 44. Stecker T, Fortney JC, Hamilton F, et al: An assessment of beliefs about mental health care among veterans who served in Iraq. *Psychiatr Serv* 58:1358–61, 2007
 45. van Staden LN, Fear N, Iversen A, et al: Young military veterans show similar help seeking behavior. *BMJ* 334:382, 2007
 46. Mann JJ, Waternaux C, Haas GL, et al: Toward a clinical model of suicidal behavior in psychiatric patients. *Am J Psychiatry* 156:181–9, 1999
 47. Renaud J, Berlim MT, McGirr A, et al: Current psychiatric morbidity, aggression/impulsivity, and personality dimensions in child and adolescent suicide: a case-control study. *J Affect Disord* 105:221–8, 2008
 48. Oquendo M, Brent DA, Birmaher B, et al: Posttraumatic stress disorder comorbid with major depression: factors mediating the association with suicidal behavior. *Am J Psychiatry* 162:560–6, 2005
 49. Blaauw E, Arensman E, Kraaij V, et al: Traumatic life events and suicide risk among jail inmates: the influence of types of events, time period and significant others. *J Trauma Stress* 15:9–16, 2002
 50. Colantonio A, Stamenova V, Abramowitz C, et al: Brain injury in a forensic psychiatry population. *Brain Inj* 21:1353–60, 2007
 51. Simpson G, Tate R: Suicidality in people surviving a traumatic brain injury: prevalence, risk factors and implications for clinical management. *Brain Inj* 21:1335–51, 2007
 52. Binswanger IA, Stern MF, Deyo RA, et al: Release from prison: a high risk of death for former inmates. *N Engl J Med* 356:157–65, 2007
 53. Geddes JR, Juszcak E: Period trends in rate of suicide in first 28 days after discharge from psychiatric hospital in Scotland, 1968–92. *BMJ* 311:357–60, 1995
 54. King EA, Baldwin DS, Sinclair JM, et al: The Wessex recent in-patient suicide study, 1: case-control study of 234 recently discharged psychiatric patient suicides. *Br J Psychiatry* 178:531–6, 2001
 55. Meehan J, Kapur N, Hunt IM, et al: Suicide in mental health in-patients and within 3 months of discharge: national clinical survey. *Br J Psychiatry* 188:129–34, 2006
 56. Pirkola S, Sohlman B, Wahlbeck K: The characteristics of suicides within a week of discharge after psychiatric hospitalization: a nationwide register study. *BMC Psychiatry* 5:32, 2005
 57. Pirkola S, Sohlman B, Heila H, et al: Reductions in post discharge suicide after deinstitutionalization and decentralization: a nationwide register study in Finland. *Psychiatr Serv* 58:221–6, 2007
 58. Qin P, Nordentoft M: Suicide risk in relation to psychiatric hospitalization: evidence based on longitudinal registers. *Arch Gen Psychiatry* 62:427–32, 2005
 59. Yim PH, Yip PS, Li RH, et al: Suicide after discharge from psychiatric inpatient care: a case-control study in Hong Kong. *Aust N Z J Psychiatry* 38:65–72, 2004
 60. Draine J, Herman DB: Critical time intervention for reentry from prison for persons with mental illness. *Psychiatr Serv* 58:1577–81, 2007
 61. Herman D, Opler L, Felix A, et al: A critical time intervention with mentally ill homeless men: impact on psychiatric symptoms. *J Nerv Ment Dis* 188:135–40, 2000
 62. Herman D, Conover S, Felix A, et al: Critical Time Intervention: an empirically supported model for preventing homelessness in high risk groups. *J Prim Prev* 28:295–312, 2007
 63. KasproW WJ, Rosenheck RA: Outcomes of critical time intervention case management of homeless veterans after psychiatric hospitalization. *Psychiatr Serv* 58:929–35, 2007
 64. Candilis PJ, Arikan R, Noone SB, et al: The new research ethic: will oversight requirements sink forensic research? *J Am Acad Psychiatry Law* 33:361–7, 2005
 65. Hillbrand M: Obstacles to research in forensic psychiatry. *J Am Acad Psychiatry Law* 33:295–8, 2005