TESTIMONY

# Suicide Prevention Efforts and Behavioral Health Treatment in the Veterans Health Administration

KATHERINE E. WATKINS

CT-370

December 2011

Testimony presented before the House Veterans' Affairs Committee, Subcommittee on Health on December 2, 2011



Published 2011 by the RAND Corporation
1776 Main Street, P.O. Box 2138, Santa Monica, CA 90407-2138
1200 South Hayes Street, Arlington, VA 22202-5050
4570 Fifth Avenue, Suite 600, Pittsburgh, PA 15213-2665
RAND URL: http://www.rand.org
To order RAND documents or to obtain additional information, contact
Distribution Services: Telephone: (310) 451-7002;
Fax: (310) 451-6915; Email: order@rand.org

**Statement of Katherine E. Watkins**[a]
**Senior Natural Scientist**
**The RAND Corporation**

***Suicide Prevention Efforts and Behavioral Health Treatment in the Veterans Health Administration***[b]

**Before the Committee on Veterans' Affairs**
**Subcommittee on Health**
**United States House of Representatives**

**December 2, 2011**

Chairman Buerkle, Representative Michaud, and distinguished members of the Committee, thank you for inviting me to testify today. It is an honor and pleasure to be here. In this testimony, I will briefly summarize the evidence that mental illness has a strong association with suicide and that providing high-quality behavioral health treatment can reduce the risk of both attempted and completed suicide. Then I will describe the results of a recent study of the quality of behavioral health care provided by the Veterans Health Administration (VHA) to veterans with mental illness and substance use disorders and discuss the implications of this study's findings for suicide prevention. I will conclude by proposing specific steps which VHA could take to improve the quality of care provided to veterans with mental illness and substance use disorders-- steps which, if taken, could further reduce suicide risk among our nation's veterans.

While suicide remains a rare event that is difficult to predict, studying the characteristics of individuals who attempt and complete suicide allows us to identify common risk factors and thus direct efforts toward prevention. Research studies have shown that over 90% of suicide victims have a diagnosable mental illness.[1-5] In the veteran population, depressive disorders, post-traumatic stress disorder (PTSD), bipolar I disorder and drug and alcohol disorders are risk factors for both attempted and completed suicide.[6-10] In one study, among veterans being treated at a VA hospital after a suicide attempt, a review of their medical records indicated that 31.8% had a diagnosed alcohol disorder, 21.8% had a drug use disorder, 21.2% had a psychotic disorder, and 18.5% had a depressive disorder.[10] Another study of veterans who completed suicide showed that bipolar disorder posed the greatest estimated risk of suicide among men,

---

[a] The opinions and conclusions expressed in this testimony are the author's alone and should not be interpreted as representing those of RAND or any of the sponsors of its research. This product is part of the RAND Corporation testimony series. RAND testimonies record testimony presented by RAND associates to federal, state, or local legislative committees; government-appointed commissions and panels; and private review and oversight bodies. The RAND Corporation is a nonprofit institution that helps improve policy and decisionmaking through research and analysis. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors.

[b] This testimony is available for free download at http://www.rand.org/pubs/testimonies/CT370.html.

and substance use disorders posed the greatest risk among women.[11] While most individuals with mental illness do not complete suicide, the strong association between mental disorders and suicide suggests that among those with vulnerability to suicide, untreated or worsening mental disorders may be causally related to suicide. Examples of vulnerability include a genetic predisposition to suicide and hopelessness.[12-15]

Identification and treatment of mental disorders is important because appropriate treatment for mental disorders may reduce the risk of suicide. Most of the data supporting this assertion come from cross-sectional studies which show an association between treatment and reduced risk. Among veterans who received a new diagnosis of depression, suicide attempt rates were lower among patients being appropriately treated with antidepressants than among those who were not.[16,17] Among individuals with bipolar disorder, continued treatment with mood-stabilizing drugs is associated with a decreased rate of completed suicide compared to brief or interrupted treatment with these medications, and the rate of suicide decreases consistently with the number of additional prescriptions.[18] Lithium and clozapine, two important pharmacotherapies for mental disorders, may have specific suicide-prevention qualities.[19,20] There are no studies of whether appropriate treatment for PTSD or for substance use disorders reduces suicide risk, although intoxication can exacerbate impulsivity and hopelessness, and many suicide attempts occur in the context of substance use.[6] This is an area where further research is needed. A recent RAND review of suicide prevention efforts in the US military concluded that the strongest empirical evidence for preventing suicide involved providing high-quality mental health treatment.[21]

The majority of individuals who die by suicide have contact with either a primary care or mental health provider in the year prior to the suicide, and nearly half have contact in the month before suicide.[22] In one study of veterans who had contact with VA treatment services and who completed suicide, all were outpatients at the time of death, 60% were hospitalized for psychiatric reasons in the year before death and 83% of those who were hospitalized completed suicide within two months of hospital discharge.[6] In another study of 968 veterans who completed suicide in the community, 22% had received health care in the VA system in the year prior to death; of these, 58% had not seen a mental health professional.[23] These studies suggest that there are opportunities for health care providers to intervene, provide appropriate care, and possibly prevent suicide.

In 2005, the VA commissioned RAND and the Altarum Institute to conduct a comprehensive evaluation of the VA's mental health and substance use treatment system.[24-26] The results reported below describe care provided in fiscal years (FY) 2007 and 2008. We do not have data on whether the quality of care has changed since then.

In FY 2008 there were 906,394 veterans receiving care at the VHA for one or more of the following diagnoses: schizophrenia, bipolar I disorder, PTSD, major depressive disorder, and

substance use disorders. Although they represented approximately 3.8% of the estimated number of all living veterans and 16.5% of all veterans who used VHA services in FY 2008, they accounted for 34.4% of all VHA costs. Approximately half had either multiple mental health conditions or a co-existing physical condition. The majority of utilization and costs were for the treatment of physical health conditions.

To evaluate quality of care, the research team developed 88 performance indicators,[27] or measures of the quality of care. We used indicators to assess the degree to which recommended care was delivered and to identify gaps in quality. Some indicators applied only to a single diagnosis, such as antidepressant use in major depression, and some applied across diagnoses, such as assessment for suicide ideation. Where there was sufficient sample size, we evaluated performance by Veterans' Integrated Service Network (VISN) , age, gender, rural/urban residence and Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) status.

Below I discuss study findings as they may relate to suicide prevention. Results are reported as VHA national averages. VISN level performance was estimated to identify average VISN performance and to test whether each VISN was significantly above or below the average VISN performance. A list of VISN number and region is provided at the end of the document (see Table 1). Evidence-based treatments are treatments that have been demonstrated through research to be effective.

***Evidence-Based Treatment for Major Depression***

Among veterans with major depression, treatment with antidepressants is associated with decreased suicide risk. Almost half (48%) of veterans beginning a new treatment episode for major depression filled prescriptions for a 12-week supply of antidepressant medication; 20% did not fill any prescription for antidepressants during the appropriate timeframe. There was a 20 percentage point difference between the highest and lowest performing VISNs for this performance indicator. Six VISNs (9, 15, 19, 20, 22 and 23) performed significantly better than the VISN average. Another seven VISNs (3, 5, 7, 8, 12, 16 and 18) performed significantly below the VISN average. Those veterans least likely to have the requisite 12-week supply were younger, rural, and had served in OEF/OIF. While some veterans may not want antidepressants, the observed variation of 20 percentage points across VISNs suggests that care can, and should, improve in those VISNs with lower rates.

To minimize the likelihood of relapse, antidepressants need to be continued for 4 to 9 months. However, only 31.2% of veterans in a new episode of treatment for major depression filled prescriptions for a 6-month supply of antidepressant medication; and 17.1% filled no prescriptions for antidepressant medication. The remaining 51.3% of veterans filled a prescription, but for less than a 6-month supply. While some veterans may choose to terminate treatment prematurely,

research suggests that clinical interventions such as telephone outreach can improve medication adherence[28] and outcomes. Adherence means using the medication as prescribed.

Among all study veterans who were beginning a new episode of treatment, only 38.3% received at least one psychotherapy visit. Among those with major depression who were receiving psychotherapy, 30.9% received psychotherapy that had elements of cognitive behavioral therapy, an evidence-based treatment for major depression. For those veterans receiving psychotherapy, increasing the delivery of evidence-based psychotherapy could improve outcomes and decrease suicide risk.

***Evidence-Based Treatment for Bipolar I Disorder***

Continuous treatment with a mood stabilizer medication is the mainstay of treatment for bipolar I disorder and is associated with a decreased rate of completed suicide.[18,29,30] Thirty-two percent of veterans with bipolar I disorder received continuous treatment with a mood stabilizer, 81.2% received intermittent treatment and 18.8% did not receive any treatment with a mood stabilizer. The difference between the highest and lowest performing VISNS was 12.1 percentage points. Seven VISNS (1, 6, 11, 15, 19, 20) had proportions that were higher than the average VISN and an equal number of VISNS (3, 5, 8, 12, 16, 18 and 21) had proportions that were lower. Eight percent of veterans with bipolar 1 disorder received inappropriate treatment of an antidepressant without use of a mood stabilizer, a practice associated with higher levels of suicidal behavior.[29] Veterans over age 65 or under age 35, and OEF/OIF veterans were at greatest risk for not receiving appropriate care.

Research suggests that use of lithium as a mood stabilizer may have specific suicide-prevention properties. However the therapeutic range within which the beneficial effects of lithium outweighs its toxic effects is quite narrow, and there is substantial clinical consensus that lithium levels should be monitored. Among patients with bipolar I disorder who were beginning treatment with lithium, (N=2,562 out of a total number of 65,090 with bipolar 1 disorder and 14,285 veterans in a new treatment episode), 51.6% received lithium drug level monitoring in a timely manner.

***Evidence-Based Treatment for PTSD***

Although PTSD increases suicide risk, it is unknown whether treatment for PTSD reduces suicide risk. This is an important area for further research. We found that 20% of veterans with PTSD who were receiving psychotherapy had documentation that at least one psychotherapy visit contained elements consistent with cognitive behavioral therapy, an evidence-based treatment for PTSD. Significantly fewer veterans at one VISN (VISN 10) had documentation of any visits with elements of cognitive behavioral therapy. Among veterans not receiving psychotherapy who were beginning a new episode of treatment for PTSD, 26% received an adequate trial of selective serotonin reuptake inhibitors, a class of antidepressants.

***Evidence-Based Treatment for Schizophrenia***

Continuous treatment with antipsychotic medication is critical for preventing relapse and rehospitalization[31] among patients with schizophrenia. Approximately 37% of veterans in the schizophrenia diagnostic cohort received continuous treatment with an antipsychotic medication. Over 80% filled at least one prescription for an antipsychotic medication and 18.1% did not receive any antipsychotic medication. There was significant variation across VISNs, with the percentage difference between the highest and lowest performing VISN being almost 20 percentage points. Seven VISNs (1, 10, 11, 15, 19, 20, and 23) significantly exceed the VISN average; an equal number of VISNs (3, 5, 7, 8, 16, 18, and 22) had 12-month supply fill rates significantly lower than the VISN average.

***Evidence-Based Treatment for Drug and Alcohol Disorders***

Numerous clinical trials have proven brief interventions to be effective for individuals with alcohol abuse. In our study, fifty-nine percent of veterans with alcohol abuse or dependence had documentation that they received a brief intervention for their alcohol use, 35% had a documented referral to mental health specialty care, and 5% were already in specialty care. Overall, 71% had documentation of appropriate care. VISN 9 had a significantly lower proportion of veterans with documentation of appropriate care. There is substantial empirical support for pharmacotherapy for individuals with alcohol dependence. For veterans beginning treatment for alcohol dependence, 6% received pharmacotherapy.

***Assessment for Suicide Ideation and Employment and Housing Problems***

Identification of and attention to psychosocial stressors are key components of high-quality psychiatric care and may also decrease suicide risk. In cross-sectional studies, psychosocial stressors such as unemployment are associated with attempted and completed suicide.[9,32-39] Among the mentally ill, homelessness is also associated with suicide. In a study of 7,224 homeless individuals with mental illness, rates of lifetime suicide attempts were above 50%; 26.9% of the sample had a suicide attempt that resulted in a medical hospitalization.[35] While it is unknown whether interventions to decrease unemployment and homelessness would decrease suicide risk, attention to these issues is a critical part of quality mental health care. Identifying whether clinical interventions to address homelessness and unemployment among the mentally ill reduce risk is an important area for further study.

The mental health assessment of a new patient should include an evaluation of suicide ideation and the patient's psychosocial support system.[40,41] We found that 82% of veterans in the study were assessed for suicide ideation. Three VISNs (4, 6 and 7) had significantly higher proportions of documentation of suicide ideation assessment, and two VISNs (2 and 19) had significantly lower proportions. Among veterans with identified suicide ideation, 96.4% had documentation of appropriate follow-up.

Assessment of psychosocial needs includes finding out whether the patient had an acceptable physical shelter and whether or not the patient had purposeful daily activity. Among study veterans beginning a new episode of treatment, 60% had documentation of an assessment of housing needs, 62% had documentation of an assessment of employment needs, and 44% had documentation of both assessments. Compared to the average VISN, VISN 10 had a significantly greater proportion of veterans who had documentation of both assessments (57.9%) and VISN 18 had a significantly lower proportion (31.8%). This variation across VISNs (26 percentage points) was the largest for any indicator. More veterans with a documented need were offered housing services (81 percent) than were offered employment services (28 percent).

***Supported Employment and Social Skills Training***

Certain evidence-based forms of psychosocial rehabilitation, such as social skills training, increase the capacity of individuals with severe mental illness to live independently. Among veterans with schizophrenia who received any psychosocial treatment, 16% had documented receipt of social skills training. Supported employment is a type of intervention that helps individuals with severe mental illness get and maintain employment, and has a robust evidence base. Among veterans with bipolar disorder, schizophrenia or major depression with psychosis, 1.9% used supported employment during the study period. While there was variation across VISNS, no VISN was higher than 3%.

***Summary and Recommendations***

In general, the quality of care provided by the VHA is as good as or better than public or privately-funded care, and of note, most veterans with mental illness are being assessed for suicide and receiving appropriate follow-up. However, in other areas, the quality of care does not meet implicit VA expectations, and there is significant room for improvement. The best evidence to date regarding suicide prevention supports providing quality mental health care. Therefore our recommendations address how the VHA might improve the quality of care for veterans with mental illness and substance use disorders, which may decrease suicide risk.

**Increase proportion of veterans who receive recommended length of pharmacotherapy.**

More than half of study veterans who began medication treatment did not receive the recommended length of treatment, and more than two-thirds of those on maintenance treatment were non-adherent. This is important because adherence to medication improves outcomes and decreases suicide risk.

Clinical registries are tools that individual clinicians and administrators can access in real time, without technical assistance, and use to systematically monitor symptoms and improve adherence. Clinical registries are not the same as the registries the VA currently has for psychosis and depression. The use of clinical registries is an area with strong potential for quality improvement, since they can be used to track individuals with a specified set of health conditions

over time in order to assess how a patient is responding to treatment and whether they are missing appointments or medication refills.

**Recommended Strategies:** We recommend that the VHA take the following steps:

1. Investigate the basis for low rates of medication adherence among the veteran population, with an emphasis on strategies to improve continuity.
2. Conduct an environmental scan to identify best practices related to clinical registries, with a particular focus on mental-health-specific implementation.
3. Procure or develop a clinical registry module for the VA's medical records system that minimizes the need for additional data entry and maintains ease of use and high-level tracking of evidence-based care.
4. Provide training in, and establish formal expectations for, use of registries.

**Increase proportion of veterans with documented assessment of housing and employment needs and establish responsibility for housing and employment services.**

Less than two-thirds of veterans with one of the five mental illnesses studied have a documented assessment of their housing and employment needs. Housing and employment policies lack sufficient detail to identify whether the Veterans Health Administration or the Veterans Benefits Administration is responsible for services.

**Recommended Strategies:** Two actions are recommended:

1. Develop a standardized documentation template for assessment of psychosocial needs.[42]
2. Clarify what constitutes need for housing and employment services, and clearly define the role of the VHA and the Veterans Benefits Administration with regard to work and housing.

**Establish formal expectations for quality measures.**

For most mental health treatments, there are no agreed-upon benchmarks to distinguish between levels of performance. Without articulated benchmarks, it is not possible to come to definitive judgments about quality or to judge whether the VA is meeting performance expectations.

**Recommended Strategies:** We recommend the following actions:

1. The VA should use a combination of empirical evidence on current performance, expert opinion, and performance data from comparable systems to set target benchmarks. At minimum, this benchmark should be the performance of the best-performing VISN.

2. Performance expectations should include a specific definition of the evidence-based treatment and what counts as meeting the benchmark.

**Implement standardized, individualized treatment planning documents.**

Treatment plans are incomplete and difficult to locate. In some cases they may not exist. There is no standardized way of documenting patient participation in treatment decisions.

**Recommended Strategies:** Two actions are recommended:

1. Implement and require the use of standardized, individualized treatment-planning documents that may be linked to problems most often associated with a particular diagnosis, services being offered, and the patient's goals for recovery. The VHA Office of Mental Health Services has recently purchased treatment-planning software but dissemination has been held up because of lack of personnel to integrate the software with the current electronic health record.
2. Incorporate the capacity for patients to comment on and document their participation in treatment planning.

**Prioritize efforts to make patient's entire health record accessible through a common portal, both across and within VISNs.**

Some VISNs have an electronic health record system that allows any provider within the VISN to access the patient's chart in real time. Other VISNs do not have this capability and it is difficult to access health records across VISNs. This difficulty can potentially impair the quality of care veterans receive if they move or receive treatment in multiple locations.

**Recommended Strategy:**

1. Prioritize efforts to make patients' entire health records accessible through a common portal to allow unfettered access and input by all clinicians caring for them across medical centers and VISNS in real time. The VA should direct the Office of Information Technology to ensure that clinicians can access patient data, regardless of where the patient receives care.

**Develop and disseminate national standards for evidence-based treatments.**

It is important that treatments be delivered with fidelity, or as they were designed to be delivered. Evidence-based treatments for which the VHA Office of Mental Health Services has disseminated written national standards appear to be implemented with more fidelity than treatments for which the VHA has not disseminated national standards. Specifying what is expected when a particular evidence-based treatment is delivered is an important first step in ensuring treatment fidelity and effectiveness.

**Recommended Strategies:**

1. Develop and disseminate national implementation standards for evidence-based treatments.
2. Use results from the extensive research conducted by VA implementation-science researchers to address the gaps identified by the evaluation. The VA is unique in that it

has a number of health-services research and development programs, as well as quality-improvement programs. Better communication between VA researchers and VA clinical services could help make use of VA expertise in this area.

**Conduct additional research using the linked data set developed by the evaluation.**

Despite the comprehensiveness of our evaluation, a great deal more could be learned. We observed significant variations in performance across every characteristic we examined, sometimes by more than 25 percentage points. Understanding the cause of these variations could allow the VHA to develop strategies to help lower-performing VISNS improve. Knowledge of which practices and quality-improvement strategies are associated with the greatest increases in quality (outcomes) per unit cost could help the VA become more efficient.

Some priority areas for further research suggested by our results are below.

1. What is the basis for variations in care that we observed? To what extent are they a function of poor documentation rather than variation in performance?
2. What can be learned from high-performing or low-performing sites?
3. What are the costs associated with quality improvement?
4. How can high quality be achieved in the most cost-efficient manner?

We do not know how suicide can be prevented, but the best evidence to date supports providing quality mental health care. The VA has substantial capacity to deliver mental health and substance use treatment to veterans with mental illness, and it outperformed the private sector on most quality indicators, which most likely demonstrates the significant advantages that accrue from an organized, nationwide system of care. Nonetheless, the VA is falling short of its own implicit expectations for providing the highest quality of care for our nation's veterans. Our study revealed ways in which the VA could build upon its current system of care with marginal effort to improve quality and potentially prevent suicides.

Thank you again for the opportunity to testify today and to share the results of the research. Additional information about our study findings related and recommendations can be found at: http://www.rand.org/pubs/technical_reports/TR956.html

**Table 1: Total FY 2008 VA Mental Health Program Evaluation Veterans, by VISN**

| VISN[C] | VISN Name |
|---|---|
| 1 | New England Health Care System |
| 2 | VA Health Care Network Upstate New York |
| 3 | VA New York/New Jersey Health Care System |
| 4 | VA Stars and Stripes Health Care Network |
| 5 | VA Capitol Health Care Network |
| 6 | Mid-Atlantic Health Care Network |
| 7 | VA Southeast Network |
| 8 | Florida/Puerto Rico Sunshine Health Care Network |
| 9 | VA Mid-South Health Care Network |
| 10 | VA Health Care System of Ohio |
| 11 | Veterans in Partnership Network |
| 12 | VA Great Lakes Health Care Network |
| 15 | VA Heartland Network |
| 16 | South Central VA Health Care Network |
| 17 | VA Heart of Texas Health Care Network |
| 18 | VA Southwest Health Care Network |
| 19 | VA Rocky Mountain Network |
| 20 | VA Northwest Network |
| 21 | VA Sierra Pacific Network |
| 22 | VA Desert Pacific Health Care Network |
| 23 | VA Midwest Health Care Network |

[C]Originally, there were 22 VISNs; VISNs 13 and 14 were integrated in 2002 and renumbered as VISN 23.

## References


1. Cavanagh JT, Carson AJ, Sharpe M, Lawrie SM. Psychological autopsy studies of suicide: A systematic review. *Psychological Medicine.* 2003;33(3):395-405.
2. Harris EC, Barraclough B. Suicide as an outcome for mental disorders. A meta-analysis. *The British Journal of Psychiatry.* Mar 1997;170:205-228.
3. Wilcox HC, Conner KR, Caine ED. Association of alcohol and drug use disorders and completed suicide: An empirical review of cohort studies. *Drug and Alcohol Dependence.* 2004;76 Suppl:S11-19.
4. Mann JJ. A current perspective of suicide and attempted suicide. *Annals of Internal Medicine.* Feb 19 2002;136(4):302-311.
5. National Institute of Mental Health. Suicide in the U.S.: Statistics and prevention. 2010; http://www.nimh.nih.gov/health/publications/suicide-in-the-us-statistics-and-prevention/index.shtml.
6. Kleespies PM, AhnAllen CG, Knight JA, Presskreischer B, Barrs KL, Boyd BL, Dennis JP. A study of self-injurious and suicidal behavior in a veteran population. *Psychological Services.* 2011;8(3):236-250.
7. Brenner LA, Betthauser LM, Homaifar BY, Villarreal E, Harwood JE, Staves PJ, Huggins JA. Posttraumatic stress disorder, traumatic brain injury, and suicide attempt history among veterans receiving mental health services. *Suicide and Life-Threatening Behavior.* Aug 2011;41(4):416-423.
8. Guerra VS, Calhoun PS. Examining the relation between posttraumatic stress disorder and suicidal ideation in an OEF/OIF veteran sample. *Journal of Anxiety Disorders.* Jan 2011;25(1):12-18.
9. Lemaire CM, Graham DP. Factors associated with suicidal ideation in OEF/OIF veterans. *Journal of Affective Disorders.* 2011;130(1-2):231-238.
10. Weiner J, Richmond TS, Conigliaro J, Wiebe DJ. Military veteran mortality following a survived suicide attempt. *BMC Public Health.* 2011;11:374.
11. Ilgen MA, Bohnert AS, Ignacio RV, McCarthy JF, Valenstein MM, Kim HM, Blow FC. Psychiatric diagnoses and risk of suicide in veterans. *Archives of General Psychiatry.* Nov 2010;67(11):1152-1158.
12. Brent DA, Mann JJ. Family genetic studies, suicide, and suicidal behavior. *American Journal of Medical Genetics Part C Seminars in Medical Genetics.* Feb 15 2005;133C(1):13-24.
13. Courtet P, Guillaume S, Malafosse A, Jollant F. Genes, suicide and decisions. *European Psychiatry.* Jun 2010;25(5):294-296.
14. McMillan D, Gilbody S, Beresford E, Neilly L. Can we predict suicide and non-fatal self-harm with the Beck Hopelessness Scale? A meta-analysis. *Psychological Medicine.* 2007;37(6):769-778.
15. Tsai SJ, Hong CJ, Liou YJ. Recent molecular genetic studies and methodological issues in suicide research. *Progress in Neuro-Psychopharmacology and Biological Psychiatry.* 2011;35(4):809-817.
16. Gibbons RD, Amatya AK, Brown CH, Hur K, Marcus SM, Bhaumik DK, Mann JJ. Post-approval drug safety surveillance. *Annual Review of Public Health.* 2010;31:419-437.
17. Gibbons RD, Brown CH, Hur K, Marcus SM, Bhaumik DK, Erkens JA, Herings RM, Mann JJ. Early evidence on the effects of regulators' suicidality warnings on SSRI prescriptions and suicide in children and adolescents. *American Journal of Psychiatry.* 2007;164(9):1356-1363.
18. Sondergard L, Lopez AG, Andersen PK, Kessing LV. Mood-stabilizing pharmacological treatment in bipolar disorders and risk of suicide. *Bipolar Disordorders.* 2008;10(1):87-94.
19. Cipriani A, Pretty H, Hawton K, Geddes JR. Lithium in the prevention of suicidal behavior and all-cause mortality in patients with mood disorders: A systematic review of randomized trials. *American Journal of Psychiatry.* 2005;162(10):1805-1819.
20. Meltzer HY, Bobo WV. Pharmacological management of suicide risk in schizophrenia. In: Tatarelli R, Pompili M, Girardi P, eds. *Suicide in schizophrenia*. Hauppauge, NY: Nova Biomedical Books; 2007:275-302.

**21.** Ramchand R, Acosta J, Burns RM, Jaycox LH, Pernin CG. *The war within: Preventing suicide in the U.S. military.* Santa Monica, CA: RAND Corporation;2011.

**22.** Luoma JB, Martin CE, Pearson JL. Contact with mental health and primary care providers before suicide: a review of the evidence. *American Journal of Psychiatry.* Jun 2002;159(6):909-916.

**23.** Basham C, Denneson LM, Millet L, Shen X, Duckart J, Dobscha SK. Characteristics and VA health care utilization of U.S. Veterans who completed suicide in Oregon between 2000 and 2005. *Suicide and Life-Threatening Behavior.* Jun 2011;41(3):287-296.

**24.** Watkins KE, Keyser DJ, Smith B, Mannle TE, Kivlahan DR, Paddock SM, Mattox T, Horvitz-Lennon M, Pincus HA. Transforming mental healthcare in the Veterans Health Administration: A model for measuring performance to improve access, quality, and outcomes. *Journal for Healthcare Quality.* Nov-Dec 2010;32(6):33-42; quiz 42-33. PMC-Journal-In Process.

**25.** Watkins KE, Pincus HA, Paddock S, Smith B, Woodroffe A, Farmer C, Sorbero ME, Horvitz-Lennon M, Mannle T, Jr., Hepner KA, Solomon J, Call C. Care for veterans with mental and substance use disorders: good performance, but room to improve on many measures. *Health Affairs.* Nov 2011;30(11):2194-2203.

**26.** Watkins KE, Smith B, Paddock SM, Mannie TE, Woodroffe A, Solomon J, Sorbero M, Farmer C, Hepner KA, Adamson D, Forrest L, Call C, Pincus HA. *Program evaluation of VHA mental health services: Capstone report (Contract # GS 10 F-0261K).* Alexandria, VA: Altarum Institute and RAND-University of Pittsburgh Health Institute 2010.

**27.** Watkins KE, Horvitz-Lennon M, Caldarone LB, Shugarman LR, Smith B, Mannle TE, Kivlahan DR, Pincus HA. Developing medical record-based performance indicators to measure the quality of mental healthcare. *Journal for Healthcare Quality.* 2011;33(1):49-67. PMID 21199073.

**28.** Haynes RB, Ackloo E, Sahota N, McDonald HP, Yao X. Interventions for enhancing medication adherence. *Cochrane Database of Systematic Reviews.* 2008(2):CD000011.

**29.** Rihmer Z. Pharmacological prevention of suicide in bipolar patients -- a realizable target. *Journal of Affective Disorders.* Nov 2007;103(1-3):1-3.

**30.** Yerevanian BI, Koek RJ, Mintz J, Akiskal HS. Bipolar pharmacotherapy and suicidal behavior Part 2. The impact of antidepressants. *Journal of Affective Disorders.* Nov 2007;103(1-3):13-21.

**31.** Kane JM. Review of treatments that can ameliorate nonadherence in patients with schizophrenia. *The Journal of Clinical Psychiatry.* 2006;67 Suppl 5:9-14.

**32.** Blakely TA, Collings SC, Atkinson J. Unemployment and suicide. Evidence for a causal association? *Journal of Epidemiology and Community Health.* Aug 2003;57(8):594-600.

**33.** Mäki N, Martikainen P. A register-based study on excess suicide mortality among unemployed men and women during different levels of unemployment in Finland. *Journal of Epidemiology and Community Health.* 2010. http://jech.bmj.com/content/early/2010/10/21/jech.2009.105908.long.

**34.** Prigerson HG, Desai RA, Liu-Mares W, Rosenheck RA. Suicidal ideation and suicide attempts in homeless mentally ill persons: age-specific risks of substance abuse. *Social Psychiatry and Psychiatric Epidemiology.* Apr 2003;38(4):213-219.

**35.** Desai RA, Liu-Mares W, Dausey DJ, Rosenheck RA. Suicidal ideation and suicide attempts in a sample of homeless people with mental illness. *Journal of Nervous and Mental Disease.* 2003;191(6):365-371.

**36.** Eynan R, Langley J, Tolomiczenko G, Rhodes AE, Links P, Wasylenki D, Goering P. The association between homelessness and suicidal ideation and behaviors: Results of a cross-sectional survey. *Suicide and Life-Threatening Behavior.* 2002;32(4):418-427.

**37.** Sundararaman R, Panangala SV, Lister SA. *Suicide prevention among veterans.* Washington, DC: Congressional Research Services;2008.

**38.** Fitzpatrick KM, Irwin J, Lagory M, Ritchey F. Just thinking about it: Social capital and suicide ideation among homeless persons. *Journal of Health Psychology.* 2007;12(5):750-760.

**39.** Mäkinen IH, Wasserman D. Labour market, work environment and suicide. *Oxford Textbook of Suicidology and Suicide Prevention*. New York, NY: Oxford University Press; 2009.
**40.** American Psychiatric Association. *Practice Guidelines for the Treatment of Psychiatric Disorders Compendium.* Washington, D.C.: American Psychiatric Association;2006.
**41.** Veterans Administration, Department of Defense. *Management of persons with psychoses.* Washington DC: Veterans Health Administration, Department of Veterans Affairs, and Health Affairs, Department of Defense;2004.
**42.** First MB, Pincus HA, Schoenbaum M. Issues for DSM-V: adding problem codes to facilitate assessment of quality of care. *American Journal of Psychiatry.* 2009;166(1):11-13.