Department of Veterans Affairs
Office of Inspector General

Report No. 16-00349-369

Healthcare Inspection

Overview of VA Suicide Prevention Efforts and Data Collection

September 19, 2017

To Report Suspected Wrongdoing in VA Programs and Operations:
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Table of Contents

Executive Summary

At the 2015 request of Senator Bill Nelson, the VA Office of Inspector General (OIG) conducted a healthcare inspection to address questions regarding VA suicide prevention efforts; suicide data collection; and various aspects of the Veterans Crisis Line (VCL), Canandaigua, NY.[1] Specifically, the questions regarding suicide prevention efforts and data collection were:

1. How do you know if VA's suicide prevention programs are working, and what percentage of veterans who die by suicide have been under the care of the Veterans Health Administration (VHA)?[2]

Whether or not suicide prevention specific policies, programming, and strategies are having a positive effect may be ultimately reflected in outcome measures. This would include identification of sustained downward trends in completed suicide rates, suicide attempt rates, and suicide re-attempt rates. However, there are limitations to determining the outcome measures of VHA's suicide prevention programs. The limitations include that VHA staff are not always notified when a veteran dies by or attempts suicide, and suicide data is only as reliable as the information provided on the death certificate. We reviewed how VHA staff track completed and attempted suicide rates. We found that:

- VHA staff tracked suicide rates of all veterans and other VHA users by matching suicide deaths from the National Death Index.

- State-based and Suicide Prevention Applications Network initiatives may not include the full population of VHA veteran suicides, non-VHA veteran user suicides, or rates among the population of U.S. veterans. VA staff used the Suicide Prevention Applications Network data to calculate re-attempt rates and rates of known suicides within 6 months of a known attempt.

- VA Central Office (VACO) mental health (MH) staff, as an activity of the national program for suicide prevention, matched the suicides coded in the National Death Index with veteran VHA users and separated military service members, which allowed for identification of suicide rates within the U.S. veteran population. This also allowed for comparison of suicide rates between VHA user

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[1] For the VCL, the questions were whether there were improvements in phone lines and technology, as well as, changes in scheduling, policies, infrastructure, or personnel, and were there metrics to show improvement. Following the publication of VAOIG *Healthcare Inspection—Veterans Crisis Line Caller Response and Quality Assurance Concerns,* in February 2016, we received additional allegations regarding the VCL. We conducted a follow-up review to determine the status of the seven recommendations from the February report, as well as new allegations concerning the VCL. We reported the VCL findings in a separate report, *Healthcare Inspection— Evaluation of the Veterans Health Administration Veterans Crisis Line,* (Report No. 16-03985-181), March 20, 2017. That report addressed issues about the VCL.

[2] We recognize that VHA has multiple broad efforts underway to reduce risk to veterans from self-harm. For the purposes of this report, the emphasis was on suicide prevention efforts coordinated by the Office of Suicide Prevention including the translation of clinical research findings into operations.

and non-VHA user veteran populations and between veteran and general populations.[3]

- The VA Office of Suicide Prevention published a report in August 2016 that provided information on recorded suicides of all veterans.[4]

2. Are data on suicides turned over to MH providers in real time; what risk factors associated with higher veteran suicides are being explored in depth, and by whom; and what ways can be identified to gather more reliable suicide data? We found that:

- Real time data were not available to MH providers in all states due to delays in reporting caused by some states utilizing paper-based reporting systems. The deployment of an electronic reporting system by all states would allow data to be simultaneously available to state vital statistics offices and the National Death Index in real time.

- Professionals responsible for completing death certificate information must be educated and trained on the importance and usage of the information they enter electronically or by using paper forms to obtain reliable suicide data.

- VA leaders implemented a predictive analytics risk model to enhance clinical care. The model identified which patients were in the highest 0.1 percent at risk for suicide. Another model in development focused on patients in the highest 5 percent at risk using a broader, population-based public health-oriented intervention.

- Non-VA researchers conducted pilot work analyzing social media posts aimed at picking up changes in MH status and/or suicidal ideation to determine risk factors for suicide. These researchers identified barriers to research including access to death and death-rate data, availability of grant funding, and privacy concerns. Other barriers included leaders' and clinicians' concerns regarding litigation, social media, and time and productivity allocations.

- Non-VA researchers with the National Center for Veterans Studies analyzed social media postings of military service members who died by suicide. The research showed that suicidal service members were more likely than those who died by other causes to avoid interpersonal situations, had a lack of interest in participating in activities with others, and had more conversations about sleep disturbances. They expressed difficulties related to interpersonal relationships and generalized stress. They were also less likely to express anger but more likely to post about negative employment, access to or ownership of firearms, emotional distress, self-help, and implied suicide. Identified barriers with the

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[3] Following the close of our review period, this activity transitioned to the Veterans Integrated Service Network 2 Center of Excellence for Suicide Prevention as of October 2016. The VHA Epidemiology Program continues to work on studies of suicide, specifically as it pertains to cohorts of deployed veterans, with comparisons to non-deployed or U.S. population.

[4] Office of Suicide Prevention report, *Suicide Among Veterans and Other Americans 2001–2014*, August 3, 2016.

research were the availability of grant funding and a "Catch-22" situation of needing pilot data to obtain grant funding for increased research.

- As of September 30, 2016, the Veterans Integrated Service Network (VISN) 2 Center of Excellence and VISN 19 Mental Illness Research, Education and Clinical Center had in excess of 20 ongoing research studies and projects related to suicide prevention.

- Reliability of suicide data is contingent on the usage of clear and standardized terminology. In 2010, VHA leaders announced the adoption of the Self-Directed Violence Classification System and the Self-Directed Violence Classification System clinical tool.[5] The VISN 19 Mental Illness Research, Education and Clinical Center implementation efforts included promoting the use of the Self-Directed Violence Classification System clinical tool and distributing educational materials. A barrier to full implementation was funding. Funding for full implementation included the purchase of supplies and dissemination of educational materials.

- To ensure reliability of suicide data, leaders from the National Association for Public Health Statistics and Information Systems stated that training of those who were responsible for completing the medical portion of the death certificate was critical.

- In November 2014, during a Department of Defense (DOD) OIG review, the DOD OIG recommended that the DOD Suicide Event Report data be shared with VA to enhance DOD developing a routine method for transfer of military information. At the time of this review, VHA and DOD Suicide Prevention program staff were developing a sharing agreement.

This report is informational only therefore we made no recommendations.

Comments

The Acting Under Secretary for Health concurred with the report. (See Appendix A, page 23 for the full text of the comments.) No further action is required.

JOHN D. DAIGH, JR., M.D.
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Healthcare Inspections

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[5] Bridgett B. Matarrazzo, *Psy.D*. The Self–Directed Violence Classification System (SDVCS), What it is and why it matters (PowerPoint presentation), VHA VISN 19 Mental Illness Research, Education and Clinical Center and the University of Colorado, School of Medicine Department of Psychiatry, developed in collaboration with the Centers for Disease Control and Prevention.

Purpose

The VA Office of Inspector General (OIG) conducted a healthcare inspection in response to a request from Senator Bill Nelson to address questions regarding VA suicide prevention efforts; suicide data collection; and various aspects of the Veterans Crisis Line (VCL), Canandaigua, NY. The VCL was reviewed and discussed in a separate report, *Healthcare Inspection—Evaluation of the Veterans Health Administration Veterans Crisis Line,* (Report No. 16-03985-181), March 20, 2017. In this report, we addressed Senator Nelson's questions concerning VA suicide prevention efforts and data collection.

Background

The Substance Abuse and Mental Health Services Administration (SAMHSA) describes suicide as "…a serious public health problem that causes immense grief and loss to individuals, families, and communities nationwide." The basis for suicide is complex and involves multiple interweaving factors. The goal of suicide prevention is to reduce risk factors that increase the potential for suicidal thoughts and behaviors while expanding elements that provide support, strength, and protection.[6]

According to a 2015 Centers for Disease Control and Prevention (CDC)[7] publication using data through 2013, suicide was the tenth leading cause of death in the U.S.; the second leading cause of death in the 15–34 year age group; and the fourth and fifth leading causes of death in the 35–44 and 45–54 year age groups, respectively.[8]

Preventing suicides among veterans is a complex, multifactorial endeavor. According to a 2016 Veterans Health Administration (VHA) report that analyzed suicide data through 2014, the suicide rate among male and female VHA users was 41.6 and 16.7 per 100,000, respectively.[9] The report also cited that more than 60 percent of suicides among users of VHA services were completed among patients with established mental health (MH) diagnoses.

On September 24, 2015, OIG received a letter from Senator Bill Nelson requesting that OIG review various aspects of VHA's suicide prevention program. Specifically, Senator Nelson requested that OIG address the following questions:

1. How do you know if VA's suicide prevention programs are working, and what percentage of veterans who die by suicide have been under the care of VHA?

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[6] SAMHSA website, http://www.samhsa.gov/suicide–prevention. Accessed May 2, 2016.

[7] The CDC is a component of the Department of Health and Human Services; the CDC's mission is to protect America from health, safety and security threats, both foreign and in the U.S. CDC website, https://www.cdc.gov/about/organization/mission.htm. Accessed February 1, 2017.

[8] CDC website, http://www.cdc.gov/violenceprevention/pdf/suicide–datasheet–a.pdf. Accessed May 2, 2016.

[9] Office of Suicide Prevention report, *Suicide Among Veterans and Other Americans 2001–2014,* August 3, 2016.

2. Are data on suicides turned over to MH providers in real time; what risk factors associated with higher veteran suicides are being explored in depth, and by whom; and what ways can be identified to gather more reliable suicide data?

In Section 1 of this report, we discuss how VHA researchers evaluated the efficacy of the VHA suicide prevention strategy, programs, and interventions, and we discuss the sources, nature, and limitations of various reported veteran suicide rates.

In Section 2 of this report, we addressed timeliness and accuracy in the reporting of suicide data and reviewed recent VHA analytics-based research including implementation of a VHA predictive analytics risk model. We also reviewed VHA and non-VA methods that addressed improving reliability of suicide data.

Scope and Methodology

The period of review was September 24, 2015 through September 30, 2016. During this review, we interviewed the following VA professionals:

- National Director for Suicide Prevention
- Director and Assistant Director, Office of Mental Health Operations
- Chief Consultant for Mental Health Program Analysis
- Director of Epidemiology, VA Office of Patient Care Services, Post Deployment Health Services
- Staff at the Veterans Integrated Service Network (VISN) 2 Center of Excellence (COE)
- Staff at the VISN 19 Mental Illness Research, Education and Clinical Center (MIRECC)
- A clinician leader in the realm of applications of social media and interactive technologies for MH

We also interviewed the following non-VA professionals:

- Leaders and staff at the CDC
- Staff at the National Center for Health Statistics (NCHS)[10]
- Deputy Director, U.S. Division of Vital Statistics[11]
- Chief of the Suicide Prevention Branch at SAMHSA
- Executive Director, National Center for Veterans Studies (NCVS), University of Utah

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[10] NCHS is a division of the CDC that provides statistical information that guides actions and policies meant to improve health. CDC website, https://www.cdc.gov/nchs/about/mission.htm. Accessed February 1, 2017.

[11] The U.S. Division of Vital Statistics is a division of the CDC that is responsible for registration of vital events including births, deaths, marriages, divorces and fetal deaths. CDC website, https://www.cdc.gov/nchs/nvss/. Accessed March 21, 2017.

For background purposes, we reviewed peer-reviewed medical literature on suicide rate measurement and determination, veteran suicide prevention strategies, and suicide prevention in general. We reviewed multiple papers on the use of social media as a new tool to detect MH distress signals. Additionally, we reviewed a recent VHA-authored, peer-reviewed journal publication on modeling the risk of suicide using predictive analytics.

We reviewed a listing of ongoing suicide prevention-related projects in which the COE and MIRECC have the lead or a participatory role. We also reviewed the COE's Statement of Direction for 2014–2018.

We reviewed the data elements compiled by the VHA Suicide Prevention Applications Network (SPAN). SPAN received data from VHA suicide prevention coordinators[12] related to suicidal ideation and suicidal behavior of veterans. Data were processed and managed by statistical staff and program analysts at the COE for Suicide Prevention for VHA MH Services.

Using the SPAN event rate metric, we reviewed VHA data for non-fatal suicide attempts per 100,000 unique users of VHA services. We reviewed VHA data for the non-fatal suicide event rate and re-event rate for October 2015–September 2016.

We obtained and analyzed data from the following systems:

- VHA Support Service Center
- VHA Mental Health Information System
- Mental Health Management Dashboard
- VHA's Strategic Analytics for Improvement and Learning Value Model

We also reviewed documents, reports, and data from VHA and other government agencies, commissions, and non-profit organizations regarding suicide reporting, suicide prevention program evaluation, and assessment of the quality, validity, and completeness of suicide data.

This report does not review or discuss VHA's VCL, as the VCL was reviewed in OIG's report, *Healthcare Inspection—Evaluation of the Veterans Health Administration Veterans Crisis Line,* (Report No. 16-03985-181), March 20, 2017.

We conducted the inspection in accordance with *Quality Standards for Inspection and Evaluation* published by the Council of the Inspectors General on Integrity and Efficiency.

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[12] Suicide Prevention Coordinators are responsible for suicide prevention activities that include tracking and reporting of data; ensuring veterans receive a suicide risk assessment screen; identifying high-risk veterans; managing the patient record flag; and ensuring safety plans are in place. They also receive referrals and provide awareness and outreach.

Inspection Results

Section 1: Preventive Care for Veterans

A. How do you know if VA's suicide prevention programs are working?

Whether or not suicide prevention specific policies, programming, and strategies are having a positive effect may be ultimately reflected in outcome measures, specifically in identification of sustained downward trends in completed suicide rates, suicide attempt rates, and suicide re-attempt rates. There are limitations to determining the outcome measures of VHA's suicide prevention programs. The limitations included that VHA staff were not always notified when a veteran died by or attempted suicide, and suicide data were only as reliable as the information provided on the death certificate.

We reviewed how VHA staff tracked completed and attempted suicide rates. The 2016 VHA report cited that "despite a growing patient population with known risk factors for suicide, rates of suicide remained stable among VHA patients diagnosed with a mental health condition or substance use disorder between 2001 and 2014."[13] According to the Serious Mental Illness Treatment Resource and Evaluation Center, no hypothesis testing or statements of statistical significance were made in the 2016 VHA report. The statements in the report were based on the standardized mortality ratio as well as other statistics. The report compared suicide rates between veterans and the general population for following trends over time and did not attribute causation to the differences in rates. Attempts to compare rates among VHA users or veterans to the general population were limited by the inclusion of both veterans and non-veterans in the general population (the denominator).

1. Population Based Measurement

We found that VHA staff tracked suicide rates of all veterans and other VHA users by matching suicide deaths from the National Death Index (NDI).[14]

When VHA leaders set up the VHA suicide prevention program, it was based on the hypothesis that improving access to high quality, evidence-based MH care, supplemented by specific suicide prevention programming, would affect suicide rates. However, capturing the impact of suicide prevention programming is challenging. While access and process measures identified variations in implementation of, or adherence to, MH and suicide prevention specific policies and programming, quantifying the impact of suicide prevention programming was more difficult.

Several VHA initiatives may have been simultaneously ongoing, thereby creating difficulties in teasing out individualized programmatic or operational impact at the

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[13] Office of Suicide Prevention report, *Suicide Among Veterans and Other Americans 2001–2014*, August 3, 2016.
[14] The NDI, a self-supporting service of NCHS, is a component of the National Vital Statistics System. NDI is a centralized database of death record information compiled from state vital statistics offices. NCHS website, www.cdc.gov/nchs/data/factsheets/factsheet_ndi.htm. Accessed January 19, 2017.

individual facility and VISN level. In addition to not having a large enough population size to address global effect and co-occurring programming initiatives, site-to-site variability in population size, demography, and other variables rendered site-to-site comparisons problematic. For these reasons, evaluation of whether VHA efforts were working was most amenable to a national (or population level) analysis of the trend of suicide rates over time as a reflection of the impact of the portfolio of MH and targeted suicide prevention programming.

On a facility level, site-to-site variability impacted the accuracy in program evaluation-outcome analysis. This limitation may in part be circumvented by comparing intra-facility (same facility to itself) suicide rates over a several year period, or alternatively through use of predictive analytics based risk-modeling (which will be discussed further in Section 2 of this report).

2**.** VHA Staff Measures Completed Suicide and Attempt Rates

The development and expansion of the joint VA/Department of Defense (DOD) Suicide Data Repository allowed for identification of suicide rates within the U.S. veteran population and other VHA users. VHA staff calculated completed suicide and attempt rates using both internal and external sources.

   a. Internal Data Sources

VHA Data Collection of Known Suicide and Suicide Events. In 2008, VHA MH Services established an internal suicide surveillance and clinical support system. VHA Suicide Prevention Coordinators enter data on suicides and suicide events (non-fatal attempts, serious suicidal ideation, and suicide plans) known to VHA into the SPAN database, which is maintained on the VHA campus in Canandaigua, NY. Coordinators enter multiple data elements related to completed and attempted suicides. These data elements include the patient's medical and MH diagnoses; whether the patient had a history of previous attempts; whether the patient was seen at VA within 7 and 30 days of the suicide event; and the patient's military era.[15] The data limitation was that only suicides and attempted suicides known by VHA suicide prevention coordinators were captured in the data.

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[15] Military era is the period in which a service member served in the military.

<u>VHA Analyses of Known Suicide Attempts and Suicide Re-events</u>. Each year, the VHA Serious Mental Illness Treatment Resource and Evaluation Center and staff funded through the suicide prevention program at the COE completes an annual analysis of non-fatal suicide attempts and re-attempts. Several of the VHA metrics for fiscal year (FY) 2016 were:

- Non-fatal suicide attempt (event) rate per 100,000 unique VHA users. For the rolling 4 quarters reviewed, the rates were 32 per 100,000 VHA users per SPAN.[16]

- Adjusted re-event rate controlled for event number. For the rolling 4 quarters reviewed, the rates were 0.57 per 100,000 VHA users.[17]

b. External Data Sources

<u>State-Based Reporting to Determine Rates among VHA Users</u>. VHA had attempted to negotiate individual agreements with each state to provide VHA with veteran data on suicides. State-based reporting created limitations in the past. For example, in the 2012 Department of Veterans Affairs Suicide Data Report only 21 states participated in reporting citing privacy and other limitations. VHA now obtains NDI data from the NCHS, which includes all 50 states, New York City, Washington D.C., Puerto Rico, and the U.S. Virgin Islands.

<u>Matching to the NDI to Determine Rates among VHA Users</u>. The Serious Mental Illness Treatment Resource and Evaluation Center staff matched individual VHA services users with individual deaths coded as suicides in the CDC NCHS NDI databases as a separate effort to calculate suicide rates. Veterans who stopped using VHA services in the prior year were considered possible deaths, and staff compared these veterans' information to the NDI database to determine actual veteran deaths and the subset of suicide deaths.

Compared to the SPAN data, this methodology expanded the numerator from suicide deaths known to VHA to suicide deaths among all VHA services users. Compared to the state-based reporting agreement initiative, the NDI match captured deaths occurring within the U.S. that were reported by all 50 states.

<u>Advances from Development of the Joint VA/DOD Suicide Data Repository</u>. In 2011, VHA staff collaborated with DOD staff to create the joint VA/DOD Suicide Data Repository. Reliable DOD electronic death data goes back to October 1, 1979. Staff at

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[16] In the SPAN database, the numerator is VHA reported events for the rolling year (period of 12 months that begins and ends on a set day) that ended in the quarter with VHA service utilization in the previous or current FY prior to the event. The denominator is unique VHA users for the year that ended with the quarter based on the home facility where the veteran received the most care.

[17] In the SPAN database, this is a re-event metric based on veterans hospitalized on the first event of the time period of interest, with at least a 6-month follow-up period, and restricted to within 6 months from the first event during the time period of interest.

the VA Epidemiology Program[18] within Post-Deployment Health Services[19] developed and began using a process to match all deaths and suicide coded deaths within the NDI to the population of those who served in the military (active duty, reservists, and National Guard) since 1979.[20] Additionally, VHA staff matched VHA users from 2001 through 2014 with DOD military service members' separations from 1974 forward.

By cross-matching with the Veterans Benefits Administration U.S. Veterans database (which included VA mortality record names and social security numbers), the VA electronic health records system, and DOD data, the VA Epidemiology Program and suicide prevention program staff were able to augment the joint Suicide Data Repository data with veteran records providing coverage of the veteran population to match with NDI data in order to calculate the suicide and all-cause mortality rates of the veteran population.

In summary, MH services and targeted suicide prevention initiatives seldom occur in isolation but more as a portfolio of multiple initiatives. In addition, because of the relative rate of suicide deaths, program evaluation efforts often require analysis at a national population-based level in order to ascertain statistical distinction. These considerations make program evaluation of individual initiatives or initiatives at an individual facility challenging. Process measures and case-based data provide insights into system utilization, patient engagement, and process fidelity. However, outcome measures at a national level (suicide attempts, suicide re-attempts, and completed suicide rates) would be a more indicative measure of programmatic impact.

B. What percent of veterans who die by suicide have been under the care of VHA?

On August 3, 2016, the VA Office of Suicide Prevention published the report, *Suicide Among Veterans and Other Americans 2001–2014.* This report provided a systematic assessment of characteristics of suicide among veterans—both those veterans who used VHA services and those who did not—and compared veteran suicide data, such as rates, to non-veteran suicide data. Key findings of the suicide mortality data in the report were obtained from the VA/DOD Joint Suicide Data Repository, which included:

- VA epidemiologists and other subject matter experts in the field conducted analyses of suicide data. The data showed that an average of 20 veterans died

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[18] Epidemiology is the study of health in populations to understand the causes and patterns of health and illness. The Epidemiology Program is a research division of the VA Office of Patient Care Services and conducts epidemiology research studies and surveillance (the collection and analysis of data) on the health of Veterans. VA Office of Patient Care Services website, https://www.publichealth.va.gov/epidemiology/studies/. Accessed January 19, 2017.

[19] Post-Deployment Health Services, part of the VA Office of Patient Care Services, administers programs related to environmental and occupational exposures of veterans during military service. VA Office of Patient Care Services website, http://www.publichealth.va.gov/PUBLICHEALTH/about/postdeploymenthealth/index.asp. Accessed January 1, 2017.

[20] Following the close of our review period, this activity transitioned to the VISN 2 COE for Suicide Prevention as of October 2016. The Epidemiology Program continues to work on studies of suicide, specifically as it pertains to cohorts of deployed veterans, with comparisons to non-deployed or U.S. population.

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by suicide each day, 6 of the 20 were recent utilizers of VHA services—in the year of their deaths or the previous year.

- The risk for suicide was 21 percent higher among veterans when compared with U.S. civilian adults after adjusting for differences in age and gender.

Section 2: Data Quality and Use, Risk Factors, and Future Directions

A. Are data on suicides turned over to MH providers in real time?

We found that real time data on suicide, such as statistics on suicide rates by age, race/ethnicity, gender, suicide methods, and number of suicide attempts, were not available to MH providers in all states. Delays in collecting and sharing relevant data occurred in states that utilized paper-based reporting systems.

States using a paper-based system to report death data to NCHS were a source of delayed reporting, as paper-based systems required that data were mailed to the state vital statistics office, and only then was it electronically recorded. NCHS leaders told us that the lag time from reporting to completion of the NDI file was just under a year. Staff at the National Association for Public Health Statistics and Information Systems (NAPHSIS) has encouraged 100 percent adoption and utilization of statewide electronic reporting systems.

According to NCHS staff, approximately 75 percent of the vital records jurisdictions have implemented electronic death registration systems (EDRS). In jurisdictions with fully or partially functioning EDRS, funeral directors initiated the process by entering decedent demographic data. A medical certifier,[21] in the case of a natural death, or a coroner[22] or medical examiner[23], in the case of an unnatural death, [24] then entered cause of death determinations into a computer data system. The completed record was electronically transmitted to the appropriate jurisdiction that, in turn, linked the information to the state's vital records statistics office. In jurisdictions with paper-based death reporting, the coroner, funeral director, medical certifier, and/or medical examiner filled out and transmitted paper forms via mail to the state's vital statistics office. The deployment of an electronic reporting system by all states and the use of such a system by funeral directors and medical certifiers allowed for the creation of more timely aggregate data. Such data was readily available to each state's vital statistics offices and to the NDI in near real time.

NAPHSIS staff reported that for death registration, 46 of the 57 registration jurisdictions were using EDRS. The implementation of EDRS was in progress in three additional vital records jurisdictions. While the number of states using EDRS was promising, only eight jurisdictions processed 98 percent or more of their death records using an

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[21] A medical certifier can include physicians, nurse practitioners, dentists, and physician assistants.

[22] Coroners are not required to be physicians and typically have varied backgrounds; 80 percent are elected to their position, and they typically operate via a county-based system.

[23] Medical examiners are forensic pathologist physicians, typically appointed, and operate via a statewide system.

[24] An unnatural death can include drug overdose, suicide, or homicide.

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electronic system. This occurred because a part of the process was paper-based and/or utilized fax transmission in 37 of the 57 jurisdictions. This type of hybrid system, which relied on paper or fax elements, compromised timeliness and accuracy, interoperability, and security of these data as well as the security of the original records. For example, the electronic systems had an automatic function that checked for obvious typographical errors, which augmented the quality of the data without adding additional staff time. Within the vital records jurisdictions with electronic systems, many states may lack the resources to expand technical assistance or maximize electronic death reporting by funeral directors and medical certifiers. Some jurisdictions that adopted the EDRS early on lacked the resources to modernize their systems to keep pace with new technology and to enable future means of streamlining and improving the process of death registration.

Both electronic and paper-based state reporting systems have challenges with the accuracy of death data; inaccuracies exist in both demographics and cause of death data. According to NAPHSIS staff,[25] NCHS staff processed raw data provided by each state for inclusion into the NDI database. The raw data must be timely, and death information reported correctly, for the data to be relevant and accurately reflect the cause of death. The accuracy of the data that professionals[26] record and submit to NDI is crucial to obtaining reliable suicide data. Professionals responsible for completing death certificate information must be educated and trained on the importance and usage of the information they enter electronically or by using paper forms.

All states' vital statistic offices charge user fees, and in most states, the fees are the primary basis of funding to support and maintain their programs. The portion of fees NDI collects for use of the NDI is sent back to the states and typically reverts to the state's general fund.

In February 2016, NAPHSIS leaders requested, as part of the FY 2017 Departments of Labor, Health and Human Services, Education, and Related Agencies Appropriations Bill, inclusion of a $5 million appropriation to the NCHS to support vital statistics efforts to modernize vital records registration. The Labor, Health and Human Services, and Education Appropriations Bill is pending until April 2018 under the Further Continuing and Security Assistance Appropriations Act, 2017 (H.R. 2028).

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[25] NAPHSIS "…is a national association of state vital records and public health statistics offices which is based in the Washington, DC area. The association was formed in 1933 to provide a forum for the study, discussion, and solution of problems related to these programs in the respective members' health departments." NAPHSIS website, https://naphsis–web.sharepoint.com/about/Pages/AboutNaphsis.aspx. Accessed September 7, 2016.
[26] Professionals are any coroner, medical examiner, or physician, either in the private sector or within VA, https://www.cdc.gov/nchs/data/misc/hb_cod.pdf. Accessed June 22, 2017.

For FY 2017, the House Appropriations Committee accepted the President's February 2017 request for flat funding of $160.4 million to maintain the NCHS. The Senate Appropriations Committee cut the NCHS budget by $4.4 million and offered accompanying language relevant to the National Vital Statistics System:

> …The Committee continues support for the National Vital Statistics System, which provides data on births, deaths, and fetal deaths. The Committee is aware most states now or will soon have operational electronic birth and death registration systems, an essential tool in monitoring public health and fighting waste, fraud, and abuse in Federal entitlement programs. The Committee requests CDC ensure the modernization of the CDC system to ensure interoperability with state systems….[27]

> …Modernizing Vital Statistics—While most States now or will soon have operational electronic birth and death registration systems, many do not have the resources to maximize electronic death reporting or to modernize their systems to keep pace with new technology. The Committee encourages CDC to support states in upgrading antiquated systems and improving the quality and accuracy of vital statistics reporting….[28]

B. What risk factors associated with higher veteran suicides are being explored in depth, and by whom?

We identified several VA and non-VA research projects and initiatives underway that included risk models, analyses of social media, and ongoing research by the COE and the MIRECC.

VA leaders implemented a predictive analytics risk model to enhance clinical care. The model identifies which patients are potentially at highest risk of suicide and assists clinicians in implementing preventive interventions. At the time of our review, VA developed a model focused on providing individualized clinical and preventive care for patients who were in the highest 0.1 percent at risk for suicide. Another model in development focused on patients in the highest 5 percent at risk using a broader, population-based public health-oriented intervention.

We found non-VA researchers conducted pilot studies analyzing social media posts, aimed at identifying changes in patients' MH status and/or suicidal ideation to determine suicide risk factors. These researchers identified research barriers that included access to death and death-rate data, limited availability of grant funding, and privacy concerns. Other barriers included leaders' and clinicians' concerns regarding litigation, social media, and time and productivity allocations.

We found that NCVS[29] researchers analyzed social media postings of military service members who died by suicide and of a demographically matched control group. The research revealed that those who died by suicide were more likely to avoid interpersonal situations and/or lacked interest in participating in activities with others

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[27] Departments of Labor, Health and Human Services, Education, and Related Agencies Appropriations Bill, Report 114, 114th Congress 2d Session, 2017.
[28] Ibid.
[29] NCVS is affiliated with the College of Social and Behavioral Science at the University of Utah and is not affiliated with the VA.

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and had more frequent conversations about sleep problems. Researchers also found that immediately prior to a service member's death by suicide, the service member expressed difficulties related to interpersonal relationships and generalized stress. They were also less likely to communicate feelings of anger, which may suggest the military service members had "resigned" themselves to their situation. Researchers found that service members who died by suicide were less likely to express anger in their posts, but more likely to post about negative employment, access to or ownership of firearms, emotional distress, self-help, and implied suicide. An identified barrier with the research was the availability of grant funding and a "Catch-22" situation of needing pilot data to obtain grant funding for expanded research.

1. VHA's Predictive Analytics Risk Model

In June 2015, VA researchers published a paper in the *American Journal of Public Health (AJPH)*, Predictive Modeling and Concentration of Risk of Suicide: Implications for Preventive Interventions in the U.S. Department of Veterans Affairs.[30] The authors noted two prior published studies from non-VHA authors which:

> …*described development and validation of an actuarial model of data from electronic medical records and its use for predicting risk of suicide over periods ranging from 1 month to 1 year…demonstrated that predictive modeling that uses information from medical and administrative records can identify patients at risk for suicide, and predictive modeling may be more accurate than clinical evaluations.*[31,32]

The authors also wrote:

> *The most direct clinical application of predictive modeling would be to allow targeting of selective clinical and preventive services. One strategy would enhance clinical care, possibly through a program where each patient's provider(s), probably with support from a care manager, would reevaluate care plans, identify and address barriers to delivering evidence-based care, implement and monitor the outcomes of any needed changes in treatment, and repeat this process as necessary. Another approach would be to implement interventions derived from evidence-based strategies for suicide prevention, such as patient education, expressions of caring, regularly scheduled contact, outreach in response to missed appointments or gaps in care, facilitated access to services when patients experience the need, and training in coping skills such as problem solving.*[33]

The authors concluded, "Predictive modeling can identify high-risk patients who were not identified on clinical grounds. VHA is developing modeling to enhance clinical care and to guide the delivery of preventive interventions."

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[30] John F. McCarthy, PhD, Robert M. Bossarte, PhD et al. Predictive modeling and concentration of the risk of suicide: Implications for preventive interventions in the US Department of Veterans Affairs, *American Journal of Public Health*. June 2015.

[31] Kessler RC, Warner CH, Ivany C et al. Predicting suicides after psychiatric hospitalization in US Army soldiers: the Army Study to Assess Risk and Resilience in Service members (Army STARRS), *JAMA Psychiatry*. 2015; 72 (1):49–57.

[32] Tran T, Luo W. Phong D, et al. Risk Stratification using data from electronic medical records better predicts suicide risks than clinical assessments, *BMC Psychiatry*. 2014;14(1):76.

[33] John F. McCarthy, PhD, Robert M. Bossarte, PhD et al. Predictive modeling and concentration of the risk of suicide: Implications for preventive interventions in the US Department of Veterans Affairs, *American Journal of Public Health*. June 2015.

In fall 2016, VHA piloted a program that uses predictive analytics to identify veterans who are at high risk for suicide. The program is referred to as the Recovery Engagement and Coordination for Health—Veterans Enhanced Treatment (REACH VET), and its intended use is to act as an early detection system to allow providers to reach out before the veteran experiences a crisis. When a veteran is determined to be at high-risk for suicide, a primary care or MH provider is to offer intervention based on information obtained in a follow-up review of the patients' conditions.[34][35] As of April 2017, the REACH VET program was fully implemented according to the National Director of VA's Office for Suicide Prevention, who said, "By being able to identify veterans in need of care and treating them as early as possible, it decreases the likelihood of more serious conditions developing down the road."[36]

Additionally, VA developed a model focused on providing individualized clinical and preventive care for patients who were in the highest 0.1 percent at risk for suicide. Another model in development focused on patients in the highest 5 percent at risk using a broader, population-based public health-oriented intervention.

2. <u>Social Media Research</u>

   a. *Non-VA Research on Use of Social Media for Indicators of Change in MH Status*

With the proliferation and widespread use of social media websites, researchers are increasingly exploring how information from these sites might be useful in developing and evaluating suicide intervention and prevention strategies. Academic and other non-VA researchers have reported on pilot work related to social media indicators of a change in MH status. Their published works cover a range of MH related issues and several social media platforms including:

- Classifying human affective states and exploring human emotional states in social media.

- Predicting post-partum changes in emotion and behavior using social media and predicting post-partum depression from Facebook[37] data.

- Social media as a measurement tool of depression in populations and predictor of depression via social media.

- MH discourse on Reddit[38] and characterizing MH self-disclosure in social media.

- A characterization study of anorexia nervosa on Tumblr;[39] the use of Facebook and disordered eating in college-age women; predicting mental illness severity in

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[34] Website, http://vaww.mirecc.va.gov/reachvet/index.asp. Accessed April 17, 2017.

[35] Website, https://www.va.gov/opa/pressrel/pressrelease.cfm?id=2878. Accessed April 18, 2017.

[36] Website, http://vaww.mirecc.va.gov/reachvet/index.asp. Accessed April 18, 2017.

[37] Facebook is a social networking site that involves setting up a profile and is a forum for users to add photos, videos, and comments shared with people in the user's network or with the public. It also has a feature that allows for sending private messages to users.

[38] Reddit is a social media, social news aggregation website that uses a web content rating system to organize posts.

[39] Tumblr is a microblogging and social networking website.

online eating disorder communities; and analysis of anorexia in recovery using social media.

- Quantifying MH signals using Twitter.[40]

- Discovering shifts to suicidal ideation from MH content in social media; measuring post-traumatic stress disorder using Twitter; and detecting changes in suicide-related content manifested in social media following celebrity suicides.

Researchers used analyzed metadata[41] (such as time of postings, language structure of postings, and length and frequency of postings) in addition to focusing on content. Researchers also used computational linguistics, mathematical or algorithmic "black-box"[42] computer modeling, and MH clinical input in their analyses of social media posts. Researchers identified several barriers to using social media as a tool in suicide prevention efforts, including:

- Access to death and death rate data—in the absence of real time death reporting, changes cannot be monitored as they occur.

- The availability of grant funding to bring the subgroup of clinicians, data scientists, and health informatics specialists together to support collaborative research into the potential use of social media for enhancing suicide prevention efforts. In general, limited funding is available for suicide and suicide prevention research as a whole.

- Privacy concerns, which in turn highlight the issue of voluntary patient opt-in/participation.

- Leaders' and clinicians' concerns regarding litigation, social media, and time and productivity allocations.

Sophisticated mathematical models using social media to detect signals related to MH issues could potentially be of use as a tool to monitor changes in MH status for at-risk patients and for alerting clinicians when social media communications appear troubling.

b. Social Media Research by NCVS and Defense Personnel and Security Research Center.

NCVS researchers at the University of Utah used grant funding to develop a model based on analyzing social media postings and media data. Sample[43] size was 1,400 military service members where half died by suicide and the other half died from causes other than suicide.

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[40] Twitter is a social networking service that allows users to send and read short 140-character messages called "tweets." A registered user can read and post tweets, while an unregistered user has read only access.

[41] Metadata is data that provides information about other data, website, https://www.merriam-webster.com/dictionary/metadata. Accessed March 20, 2017.

[42] Black-box refers to an algorithm's lack of explanation of its workings.

[43] The sample was drawn from the DOD Suicide Data Repository.

The objective was to determine if military service members who died by suicide foreshadowed the event on their social networking profiles. In particular, this initial study looked for signals that corresponded with indicators from the fluid vulnerability theory.[44] The researchers were able to obtain insight into the thoughts and behaviors of military service members for the months leading up to their deaths by analyzing their social media posts.

The research showed that service members who died by suicide were more likely than those who died by other causes to avoid interpersonal situations and/or lacked interest in participating in activities with others and had more frequent conversations about sleep problems. Researchers found that immediately prior to a service member's death by suicide, the service member tended to communicate more often about difficulties related to interpersonal relationships and tended to more frequently express generalized stress. Military service members who died by suicide were less likely to communicate feelings of anger, which may suggest the military service members had "resigned" themselves to their situation, whereas users whose social networking posts included more content characterized by anger and a thwarted sense of belonging were less likely to die by suicide.

It is important to note that point-in-time risk assessments may not fully reflect patient risk, which may fluctuate over time. In addition, modeling utilizing both social media and health records may as a whole capture suicide risk better than use of social media or health record review alone.

Research results indicated that subjects in the suicide group were more likely to have posted information about negative employment experiences; personal access to or ownership of firearms; emotional distress; self-help; and implied suicide (that is, vague statements indicating an imminent departure).

Interactions with third parties, such as online friends, were generally positive and helpful. However, only subjects in the suicide group had friends who expressed an urgency to connect with the subjects in the physical environment.

Researchers identified difficulty in obtaining grant funding as a barrier. During an interview with the lead author of the research, we were told that when the authors initially applied for non-VA governmental grant funding, they could not obtain funding without pilot study data. This seemed to create a "Catch-22" situation in that they could not get funding to support running a pilot study because, in order to apply for grant funding for a full study, pilot study data were required.

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[44] "Fluid vulnerability theory proposes that suicide risk exists on two dimensions: baseline risk and acute risk. Baseline risk is affected by the individual's historical risk factors and predispositions and therefore varies among individuals. In this sense, baseline risk is akin to an individual's "set point" for experiencing a suicidal crisis. The acute dimension of risk is the short-term dimension of risk that coincides with emotional crises, typically in response to an external or internal triggering event. The most common triggering events among military service members include relationship, legal/disciplinary, financial, and medical problems." Psychiatric Times website, http://www.psychiatrictimes.com/military–mental–health/suicide–among–service–members/page/0/2. Accessed March 30, 2016. Craig J. Bryan, PsyD, Suicide Among Service Members, Psychiatric Times, online, July 14, 2011.

3. COE and MIRECC Ongoing Research[45]

   a. COE Ongoing Research

The mission of the COE is "to integrate surveillance with intervention development through research to inform the implementation of effective veteran suicide prevention strategies."[46] The COE framework focuses on a public health approach to suicide prevention.

Examples of COE supported, ongoing VA related research (listed by title) related to factors associated with higher risk for suicide include:[47]

- Risk and Protective Factors for Veteran Suicide Following Discharge from VA Nursing Homes

- Suicide among Veterans Discharged from VA Psychiatric Inpatient Units, 2005–2010

- Analysis of Secondary Data from the National Survey on Drug Use and Health on Self-Reported HIV [Human Immunodeficiency Virus] Status and Suicide

- Depression, Alcohol Use Disorders, and Suicide Among Veterans who Receive VHA Services

- Warning Signs for Suicide Attempts

- Veterans Crisis Line (VCL): Suicide Prevention Research Project

- Other Psychological or Physical Stress, Not Elsewhere Classified, in Veterans with a History of Suicide Attempts

- Do Pastoral Care Services Help Mitigate Risk for Repeat Suicide Attempts

- Medication Safety and Risk of Suicidal Ideation, Behavior and Suicide in Veterans

- Analysis of a Completed Randomized Controlled Trial Comparing Prescribed Medication Dispensing in Blister Packs vs Dispense as Usual (DUA) Packaging for Veterans with Serious Mental Illnesses to Prevent Suicide and Improve Medication Adherence

- Veterans Crisis Line (VCL): Variations in Service Utilization and Outcomes for Rescued Veterans

- Analysis of Secondary Data from the Behavioral Risk Factor Surveillance System

- Behavioral Health Autopsy Program-Research Project

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[45] While VA has many research entities and initiatives, this report focuses on the two research bodies with specific missions of risk surveillance and reduction with regard to suicide prevention, and rapid clinical translation of findings into practice.

[46] VA Center of Excellence for Suicide Prevention Statement of Direction: 2014–2018.

[47] Not included in the list were other COE studies/projects that were not related to suicide risk factors, for example, studies of interventions.

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b. MIRECC On-Going Research

The mission of MIRECC "is to study suicide with the goal of reducing suicidal ideation and suicidal behaviors in the veteran population. Suicide prevention research takes place on a continuum from understanding to screening and assessment to treatment."[48] Examples of some of the MIRECC research (listed by title) include:[49]

- Military Sexual Trauma and Suicidal Thoughts and Behaviors

- Neurobiology of Impulsivity and Aggression in Female Veterans

- Neurobiology of Self-Directed Violence in Veterans with Chronic Pain and Traumatic Brain Injury

- Uridine[50] for Rapid-Acting Treatment of Veterans with Suicidal Ideation

- Target Engagement Neuroimaging Study of Uridine in Suicidal Veterans

- Double-Blind Placebo-Controlled Study of Lithium[51] for Preventing Repeated Suicidal Self-Directed Violence in Patients with Depression or Bipolar Disorder

- Toward a Gold Standard for Suicide Risk Assessment for Military Personnel

- Neuroimaging Correlates of Suicide Risk Assessment

- Feasibility Trail of the Collaborative Assessment and Management of Suicidality Group (CAMS-G)

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[48] VISN 19 MIRECC website, http://www.mirecc.va.gov/visn19/research/index.asp. Accessed May 10, 2016.

[49] MIRECC is engaged in over 50 research projects at any given time.

[50] Uridine is a pyrimidine nucleoside, which is a class of molecules that may have a therapeutic impact on mood regulation via modification of the glutamatergic system. Website, http://proteom.elte.hu/_publications/PDFs/Arpi_uridin_Curr_Top_11.pdf. Accessed December 3, 2016.

[51] Lithium is a salt used for mood stabilization in patients with bipolar disorder and requires a prescription.

C. What ways can be identified to gather more reliable suicide data?

The collection of data related to suicide is useful in identifying and determining who is at the highest risk of attempting or completing suicide. Types of data collected included, but are not limited to, suicide rates by age, race/ethnicity, and gender; suicide methods; and number of suicide attempts. Once clinicians are able to determine who is at the highest risk for suicide, clinicians can then better target intervention and prevention plans.

We found that ways to gather reliable suicide data include:

1. Full Implementation and Use of Standardized Terminology such as the Self-Directed Violence Classification System and its Clinical Tool by VHA Clinicians[52]

Several definitions for suicide and non-fatal self-harm have been developed over the years. In 2003, CDC staff started work on what they called the self-directed violence surveillance that included uniform definitions and recommended data elements.[53]

In 2008, the then VA Secretary, Dr. James B. Peake, formed the "Blue Ribbon Work Group on Suicide Prevention in the Veterans Population" in order to improve VHA suicide prevention programs, research, and education. Unclear and unstandardized use of terms related to suicidal behaviors prompted the work group to recommend the adoption of a standard nomenclature for "suicide definition," "suicide," and "suicide attempts."

In 2009, MIRECC staff and other researchers in the field,[54] which included CDC researchers, collaborated to finalize terms incorporated into the Self-Directed Violence Classification System (SDVCS). MIRECC staff developed a table to aid clinicians in understanding the SDVCS. The table is broken down into types, subtypes, definitions with examples, modifiers, and terms. The back of the table includes key definitions. MIRECC staff also developed the SDVCS clinical tool to help clinicians, researchers, and others classify clinical cases.[55]

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[52] The Self-Directed Violence Classification System (SDVCS) clinical tool is used by clinicians to help themselves, researchers, and others classify clinical cases. The tool is broken down into three decision trees: suicide thoughts only, behaviors without injury, and behaviors with injury.

[53] BB Matarrazo, TA Clemons, MM Silverman, LA Brenner. The self-directed violence classification system and the Columbia classification system algorithm for suicide assessment: a crosswalk, *Suicide Life Threatening Behavior.* June 2013; 43(3):235–249.

[54] CDC and the Senior Advisor to the Suicide Prevention Resource Center (and other research team members representing the VISN 19 MIRECC; the University of Colorado, Denver, School of Medicine; Wellstar Health System, Georgia; the University of Georgia; and the Department of Biostatistics and Informatics, Colorado School of Public Health).

[55] Bridgett B. Matarrazzo, *Psy.D.* The Self–Directed Violence Classification System (SDVCS), what it is and why it matters (PowerPoint presentation), VHA VISN 19 Mental Illness Research, Education and Clinical Center and the University of Colorado, School of Medicine Department of Psychiatry, developed in collaboration with CDC.

In 2010, in response to a recommendation[56] by the Blue Ribbon Work Group, VHA announced the adoption of the SDVCS and the SDVCS clinical tool, which were adopted later by DOD. Implementation efforts have included promoting the use of the SDVCS clinical tool and distributing educational materials. According to a journal article, *Implementation of a Suicide Nomenclature within Two VA Healthcare Settings*:

> *Initial implementation efforts suggest that the SDVCS and CT[57] are acceptable and useful to mental health providers. Previous research and preliminary data suggest that additional efforts will be required to facilitate widespread implementation.[58]*

Funding for full implementation includes the purchase of supplies and dissemination of educational materials and study results.

2. <u>Medicolegal Death Investigation Reporting Training for Those Responsible for Completing the Medical Portion of the Death Certificate</u>

A medicolegal death investigation is an investigation of a suspicious, violent, unexplained, or unexpected death. A medicolegal death investigator is responsible for the evidence and investigation related to the deceased person's remains and should have both a medical and legal educational background. In some states, centralized state medical examiner's offices perform death investigations, while other states utilize county/district-based medical examiner offices or a county-based mixture of medical examiner and coroner offices or county/district-based coroner offices. Completion of death reviews vary by jurisdiction. Investigators are responsible for determining and certifying the cause of death on the death certificate and reporting it to vital statistics.

Medicolegal death reporting is important because it is the responsibility of the death investigator to determine a cause of death and provide the information to the state's vital statistics department. Researchers and VHA staff use the information obtained from state vital statistics to determine suicide risk factors, and suicide methods or trends, which clinicians use to implement suicide interventions and prevention approaches.

According to NCHS staff, some challenges and training opportunities related to the difficulty in reporting suicides may include:

- Stigma – in small communities, medical certifiers may feel they are doing the family a favor if they do not choose suicide as manner of death. This could be for cultural or religious reasons, or because they believe, sometimes correctly, that the family will not receive death benefits if the death is ruled a suicide.

- Intent cannot always be determined – especially in deaths that involved high-risk behaviors such as single-car automobile crashes and drug overdose deaths.

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[56] The recommendation was to adopt a standard nomenclature/definition for suicide and suicide attempt that was consistent with other federal organizations, such as the CDC and the scientific community.

[57] CT refers to the SDVCS clinical tool.

[58] Brenner Lisa A, Breshears Ryan E, et el. Implementation of a Suicide Nomenclature within Two VA Healthcare Settings, *J Clin Psychol Med Settings* (2011) 18:116–128.

- Some medical certifiers may have overly rigid or even incorrect standards by which they judge a death to be a suicide. For example, a medical certifier may require the leaving of a suicide note, when research has found that at most a third of suicide cases, confirmed in other ways, left notes.

According to NAPHSIS staff, accurate reporting of the cause and manner of death is essential. Therefore, training of those who are responsible for completing the medical portion of the death certificate is critical to ensure reliable public health data.

3. <u>DOD Sharing DOD Suicide Event Report Data with VHA</u>

The DOD Suicide Event Report (DODSER) is the system of record for health surveillance of military service members related to suicide deaths, suicide attempts, and suicidal ideation. The November 2014 DOD OIG report, *Department of Defense Suicide Event Report (DODSER) Data Quality Assessment*, stated:

> *DODSER data is not shared with VA for integration into VA's suicide surveillance database; the System of Record Notification limits DODSER data sharing and has prevented DOD from establishing a routine transfer of relevant information to VA; and VA is, therefore, not able to use DODSER data to better understand how military experience such as deployment history or in-service suicide attempts, impacts post-service suicide behavior.*

The DOD OIG report also noted that section 1635 of Public Law 110–181 "…mandates accelerated exchange of healthcare information sharing between DOD and VA; and DOD Directive 6490.02E, *Comprehensive Health Surveillance,* requires the transfer of health surveillance data to VA, at a minimum when military service members separate or retire from the service."

The DOD OIG report recommended that the Defense Health Agency update the appropriate System of Record Notification to:

- Allow for sharing of DODSER data with VHA staff, and

- Coordinate with VHA staff to ensure appropriate establishment of privacy policies to manage privacy issues while sharing DODSER data.

VHA staff attempted to obtain access to the DODSER data because it may provide useful information to VHA clinicians. Staff at the DOD National Center for Telehealth and Technology maintain the data; the Defense Suicide Prevention Office has a copy. At the time of this review, VHA and DOD Suicide Prevention program staff were developing a sharing agreement.

Conclusions

Examples of outcomes related to suicide prevention include completed suicide rates, suicide attempt rates, and repeat attempt rates within 6 months of a previous attempt. The comprehensiveness, applicability, and interpretation of veteran suicide rates depend upon the comprehensiveness, timeliness, and fidelity of the data on veteran suicides, and the comprehensiveness and choice of the population from which a rate is determined.

The first section of this report addressed the question: How do you know if VA suicide prevention programs are working and what percentage of veterans who die by suicide have been under the care of VHA? There are limitations to determining the success of VHA suicide prevention programs. The limitations included that VHA staff were not always notified when a veteran died by or attempted suicide, and suicide data were only as reliable as the information provided on the death certificate.

While process measures and case-based data provide insights into system utilization, patient engagement, and process fidelity, outcome measures at a national level are a more precise measure of programmatic impact. We found:

- VHA staff tracks VHA user suicide rates by matching suicide deaths from the NDI with veterans who use VHA services. The state-based reporting and SPAN initiatives may not include the full population of VHA user suicides, non-VHA veteran user suicides, or rates among the population of U.S. veterans. VHA uses the SPAN data to calculate re-attempt rates within 6 months of a known attempt.

- Implementation of the joint VA/DOD Suicide Data Repository. VA Central Office (VACO) MH staff, as an activity of the national program for suicide prevention, matched the suicides coded in the NDI with veteran VHA users and separated military service members, which allowed for identification of suicide rates within the U.S. veteran population. This also allowed for comparison of suicide rates between VHA user and non-VHA user veteran populations and between veterans and the general population.[59]

- The VA Office of Suicide Prevention released a suicide report in August 2016 that provided information on recorded suicides of all veterans.

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[59] Following the close of our review period, this activity transitioned to the VISN 2 COE for Suicide Prevention as of October 2016. The Epidemiology Program continues to work on studies of suicide, specifically as it pertains to cohorts of deployed veterans, with comparisons to the non-deployed or U.S. population.

The second section of this report addressed the questions: Are data on suicides turned over to MH providers in real time; what risk factors associated with higher veteran suicides are being explored in depth and by whom; and what ways can be identified to gather more reliable suicide data? We found:

- Real time data were not available to MH providers in all states due to delays in reporting caused by states utilizing a paper-based reporting system. The deployment of an electronic reporting system by all states would allow for rapid notification that could simultaneously be available to state vital statistics offices and to the NDI in real time.

- Professionals responsible for completing death certificate information must be educated and trained on the importance and usage of the information they enter electronically or by using paper forms to obtain reliable suicide data.

- VA leaders implemented a predictive analytics risk model to enhance clinical care. The model identifies which patients are in the highest 0.1 percent at risk for suicide. Another model in development focused on patients in the highest 5 percent at risk using a broader, population-based public health-oriented intervention.

- Non-VA researchers conducted pilot work analyzing social media posts aimed at picking up changes in MH status and/or suicidal ideation to determine risk factors for suicide. These researchers identified barriers to research including access to death and death-rate data, availability of grant funding, and privacy concerns. Other barriers included leaders' and clinicians' concerns regarding litigation, social media, and time and productivity allocations.

- Non-VA researchers with the NCVS analyzed social media postings of military service members who died by suicide. The research showed that suicidal service members were more likely than those who died by other causes to avoid interpersonal situations, had a lack of interest in participating in activities with others, and had more conversations about sleep disturbances. They expressed difficulties related to interpersonal relationships and generalized stress. They were also less likely to express anger but more likely to post about negative employment, access to or ownership of firearms, emotional distress, self-help, and implied suicide. Identified barriers with the research were the availability of grant funding and a "Catch-22" situation of needing pilot data to obtain grant funding for increased research.

- As of September 30, 2016, researchers with the VISN 2 COE and the VISN 19 Mental Illness Research, Education and Clinical Center had in excess of 20 ongoing research studies and projects related to suicide prevention.

- Reliability of suicide data is contingent on the usage of clear and standardized terminology. In 2010, VHA leaders announced the adoption of the SDVCS and the SDVCS clinical tool. The VISN 19, MIRECC implementation efforts included promoting the use of the SDVCS clinical tool and distributing educational materials. A barrier to full implementation was funding. Funding for full

implementation includes the purchase of supplies and dissemination of educational materials.

- To ensure reliability of suicide data, leaders from the National Association of Public Health Statistics and Information Systems stated that training of those who are responsible for completing the medical portion of the death certificate was critical.

- In November 2014, during a DOD OIG review, the DOD OIG recommended that the DOD Suicide Event Report data be shared with VA to enhance DOD developing a routine method for transfer of military information. At the time of this review, VHA and DOD Suicide Prevention program staff were developing a sharing agreement.

This report is informational only therefore we made no recommendations.

Acting Under Secretary for Health Comments

Department of Veterans Affairs

Memorandum

Date: August 2, 2017

From: Acting Under Secretary for Health (10)

Subject: Healthcare Inspection—Overview of VA Suicide Prevention Efforts and Data Collection (Project No. 2016-00349-HI-0563)

To: Assistant Inspector General for Healthcare Inspections (54)
Director, Management Review Service (VHA 10E1D MRS Action)

1. Thank you for the opportunity to review and comment on the Office of Inspector General draft report, Health Care Inspection—Overview of VA Suicide Prevention Efforts and Data Collection.

2. The Veterans Health Administration concurs with the report.

3. If you have any questions, please email Karen Rasmussen, M.D., Director, Management Review Service at VHA 10E1DMRSAction@va.gov.

Poonam Alaigh, M.D.
Acting Under Secretary for Health

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